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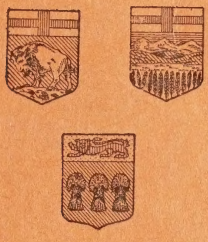
NATURAL RESOURCES

OF THE

PRAIRIE PROVINCES



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NATURAL RESOURCES

of the

PRAIRIE PROVINCES

A BRIEF COMPILATION RESPECTING
THE DEVELOPMENT OF MANITOBA
SASKATCHEWAN AND ALBERTA

1925

NATURAL RESOURCES INTELLIGENCE SERVICE
F. C. C. LYNCH, DIRECTOR

DEPARTMENT OF THE INTERIOR
CANADA

HON. CHARLES STEWART
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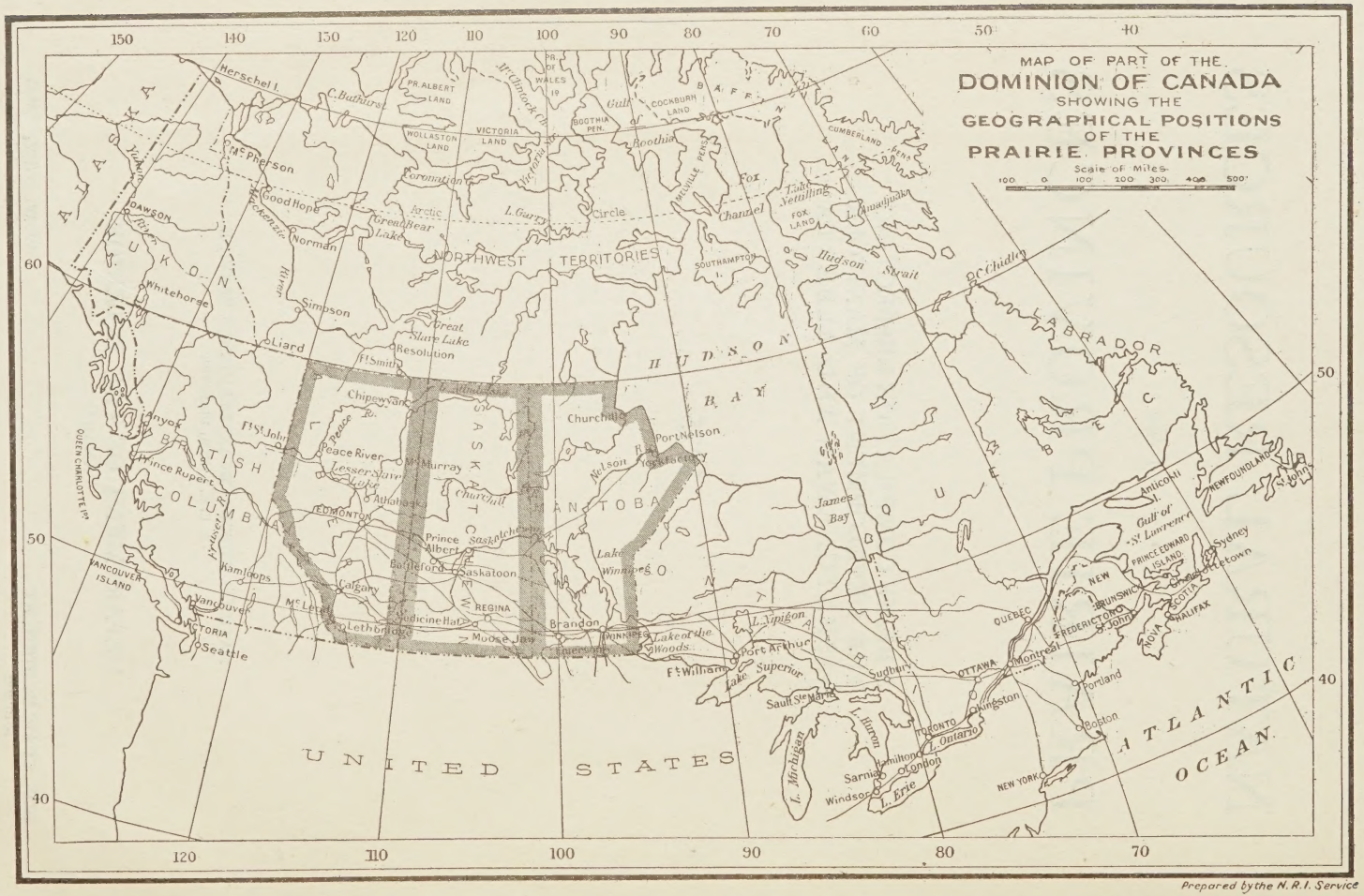

Prepared by the N.R.I. Service

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FOREWORD

THE Natural Resources Intelligence Service acknowledges with thanks the assistance given by the departments and branches of the Dominion and Provincial Governments, who have examined and corrected such sections of this compilation as fall within their respective spheres and whose publications have been freely used.

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1925

Natural Resources of the Prairie Provinces

DEVELOPMENT IN TWENTY YEARS

THE rapidity of colonization and development of the Prairie Provinces during the past two decades has been equalled in few countries of the world. In 1900 there were 3,600,000 acres under field crops. In 1923 this number had increased to 37,808,800—an increase of 950 per cent. The production of the five principal grain crops, namely, wheat, oats, rye, barley and flax, had increased from 43 million bushels in 1900 to nearly 932 million bushels in 1923. The census of 1901 showed the population of the Prairie Provinces (at that time Saskatchewan and Alberta were but districts) to be only 419,512. In twenty years the population had increased to 1,956,082—an increment of 366 per cent.

So extensive, however, is the cultivable portion of these provinces that their development may be considered to be only in the initial stage as yet. Of the estimated 170,000,000 acres of arable land less than one-fourth was under cultivation in 1923.

The density of population in the Prairie Provinces is only 2.5 persons per square mile. A comparison with the density of populaton in other countries shows the possibilities of future development in these provinces. In Belgium there are 658 persons to one square mile; in the United Kingdom, 329; in the United States, 31.

The nature of the progress which has been characteristic of the Prairie Provinces during the past twenty years is an index of continued growth in the future.

CLIMATE

The climate of the Prairie Provinces is healthful, and though it is subject to extremes of temperature, the dryness of the air mitigates the severity of the low temperatures of winter and alleviates the unpleasantness usually associated with high summer temperatures in humid atmospheres. In Alberta the winter cold is also tempered by the warm chinook winds, which frequently blow over the country from the west and southwest. In certain sections of southern Alberta and Saskatchewan, particularly the former, the light precipitation calls for dry farming methods. Some hail falls annually in various districts, but its action, though severe at times, is generally local, and the loss is usually covered by hail insurance.

Manitoba, in the settled agricultural regions, has annual mean temperature of 32° to 36° Fahr., with a growing season temperature of 56° Fahr., on the average, a precipitation of about 20 inches annually, chiefly rain, and a daily average sunshine record of eight to nine hours during the growing season.

The southern half of Saskatchewan, between the latitude of Prince Albert and the international boundary, has a mean annual temperature of 32° to 40° Fahr., with a growing season temperature of about 55° Fahr., and a mean annual precipitation of only about 16.75 inches. The sunshine average is nearly nine hours a day in the growing months. The precipitation, though light, is practically all rain, and comes, as a rule, when most needed, in May, June and July.

Alberta, from Edmonton south to the 49th parallel, has a mean annual temperature from 32° to 42° Fahr. Between Edmonton and the Peace river the annual mean temperature varies between 26° and 36° Fahr. The annual rainfall is 16.1 inches. The sunshine record is high for the growing season, about ten hours a day, on the average, during April to September, inclusive. The precipitation is practically all rain. The growing season mean temperature is about 60° Fahr.

The following temperature, precipitation and sunshine tables are intended to give a general survey of climatic conditions over a period of years. The various stations have been chosen to give adequate information regarding each section of the country in which people would be interested and to secure a station in each of the different sections where observations had been recorded for the longest time. Ten inches of snowfall have been considered as equivalent to one inch of rainfall, and the precipitation figures have been totalled on that basis.

TEMPERATURE, PRECIPITATION AND SUNSHINE

(Average figures)

	Temperature Deg. Fahr.		Precipitation. Inches			Sunshine		Average yearly precipitation. Inches
	Average highest	Average lowest	Rain	Snow	Total	Number of hours	Hours of possible duration	
MANITOBA								
Winnipeg—Height above sea, 760 ft.—								20·2
January	7	−14	0·0	8·1	0·8	110	266	
April	50	27	1·1	4·4	1·5	207	412	
May	65	39	2·1	0·9	2·2	251	479	
June	75	50	3·0	.....	3·0	250	485	
July	78	54	3·3	.....	3·3	291	488	
August	75	50	2·2	.....	2·2	257	444	
September	66	42	2·1	0·1	2·1	180	377	
Dauphin—Height above sea, 957 ft.—								17·7
January	9	−11	0·0	10·3	1·0			
April	49	− 8	0·3	1·1	0·4			
May	63	6	1·9	0·2	1·9			
June	74	27	2·6	.....	2·6	No observ	ations	
July	78	34	3·0	.....	3·0			
August	75	49	2·1	.....	2·1			
September	68	53	2·1	0·1	2·1			
The Pas—Height above sea, 1,592 ft.—								15·1
January	− 1	−18	T	6·9	0·7			
April	46	23	0·4	4·3	0·8			
May	59	37	1·3	2·2	1·6			
June	71	49	2·2	.....	2·2	No observ	ations	
July	74	58	2·3	.....	2·3			
August	71	51	2·3	.....	2·3			
September	60	40	1·6	T	1·6			
SASKATCHEWAN								
Qu'Appelle—Height above sea, 2,115 ft.—								19
January	9	−10	0·0	6·9	0·7	81	248	
April	49	26	0·4	6·7	1·1	170	413	
May	62	37	2·4	3·1	2·7	214	481	
June	71	48	3·7	.....	3·7	207	489	
July	76	52	2·8	.....	2·8	272	491	
August	73	49	2·0	.....	2·0	229	446	
September	64	40	1·3	1·0	1·4	163	377	

TEMPERATURE, PRECIPITATION AND SUNSHINE—*Concluded*

(Average figures)

—	Temperature. Deg. Fahr.		Precipitation. Inches			Sunshine		Average yearly precipitation. Inches.
	Average highest	Average lowest	Rain	Snow	Total	Number of hours	Hours of possible duration	
Battleford—Height above sea, 860 ft.—								14·8
January	7	— 9	0·0	4·7	0·5	105	254	
April	51	27	0·2	2·7	0·5	205	418	
May	65	30	1·9	0·8	2·0	199	488	
June	72	48	3·4	.....	3·4	227	501	
July	76	52	2·4	.....	2·4	264	503	
August	74	48	1·9	.....	1·9	236	452	
September	65	39	1·4	0·4	1·4	170	378	
Prince Albert—Height above sea, 1,450 ft—								16
January	5	—17	0·0	8·2	0·8	92	254	
April	49	24	0·4	4·4	0·8	221	412	
May	63	35	1·3	1·6	1·5	263	488	
June	71	45	2·7	.....	2·7	280	500	
July	74	50	2·3	.....	2·3	295	452	
August	72	46	2·3	.....	2·3	273	453	
September	62	37	1·3	0·7	1·4	191	379	
ALBERTA								
Calgary—Height above sea, 3,428 ft.—								16·4
January	21	1	0·1	4·9	0·5			
April	53	27	0·3	4·6	0·8			
May	62	36	2·0	3·7	2·4			
June	69	43	3·1	0·5	3·2	No obser	vations	
July	75	47	2·6	.....	2·6			
August	73	45	2·6	0·1	2·6			
September	64	37	1·0	2·1	1·2			
Edmonton—Height above sea, 2,158 ft.—								17·7
January	16	— 4	0·1	7·0	0·8	79	320	
April	53	29	0·3	3·6	0·7	212	469	
May	64	38	1·7	1·3	1·7	222	474	
June	70	44	3·3	.....	3·3	242	483	
July	74	49	3·6	.....	3·6	273	456	
August	72	46	2·5	.....	2·5	256	437	
September	63	38	1·2	1·7	1·4	184	375	
Peace River—Height above sea, 1,225 ft.—								13·7
January	4	—17	0·0	15·5	1·6			
April	52	24	0·2	1·9	0·4			
May	66	36	1·4	0·6	1·5			
June	71	43	3·0	.....	3·0	No obser	vations	
July	76	47	2·2	.....	2·2			
August	72	45	1·8	.....	1·8			
September	64	33	1·1	0·2	1·2			
Medicine Hat—Height above sea, 2,144 ft—								12·8
January	22	1	0·0	6·1	0·6	88	266	
April	59	31	0·4	2·4	0·6	220	412	
May	68	42	1·7	0·5	1·8	233	476	
June	76	49	2·6	.....	2·6	268	487	
July	83	54	1·7	.....	1·7	326	489	
August	81	51	1·5	.....	1·5	284	445	
September	70	43	0·9	0·4	0·9	196	377	

TABLE SHOWING HAIL AND FROST FOR 1921, 1922 AND 1923, GROWING MONTHS ONLY

Days with hail*

Months	Winnipeg			Dauphin			The Pas			Qu'Appelle		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
May	0	1	0	0	0	0	0	0	0	1	0	0
June	0	2	0	0	0	0	1	0	0	0	1	0
July	0	0	0	1	0	0	0	0	0	0	0	0
August	1	0	0	0	0	0	0	0	0	0	0	0
September	1	0	1	0	0	0	0	0	0	0	1	0
	Prince Albert			Medicine Hat			Edmonton			Peace River		
May	0	1	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	2	0	2	0	0	0
July	0	0	1	0	0	0	0	1	2	0	0	0
August	0	0	1	0	0	0	0	0	1	0	0	0
September	0	0	0	0	0	0	0	0	0	0	0	0

Days with frost†

Months	Winnipeg			Dauphin			The Pas			Qu'Appelle		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
May	9	0	8	8	1	12	8	4	20	8	0	11
June	1	0	0	1	0	1	0	1	2	1	0	0
July	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	1	0	0	1	1	0	0
September	0	2	2	0	1	4	4	1	8	3	4	4
	Prince Albert			Medicine Hat			Edmonton			Peace River		
May	8	0	14	2	1	2	5	7	12	4	1	0
June	1	0	0	0	0	0	0	3	0	0	1	0
July	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	5	0
September	2	3	3	3	0	2	11	3	7	7	23	0

Days below 29° fahr.‡

Months	Winnipeg			Dauphin			The Pas			Qu'Appelle		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
May	7	0	5	8	0	9	5	1	13	4	0	5
June	0	0	0	0	0	0	0	0	1	1	0	0
July	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	0	0
September	0	0	1	2	0	3	0	1	3	0	4	1
	Prince Albert			Medicine Hat			Edmonton			Peace River		
May	1	0	9	1	0	0	2	2	4	2	0	0
June	0	0	0	0	0	0	0	1	0	0	1	0
July	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	1	0
September	0	2	1	0	0	0	4	1	2	4	14	0

*This does not necessarily mean 24 hours of hail, but merely indicates days during which hail fell.
†Days in which temperature reached 32° Fahr. (Freezing point of water) or lower.
‡Severe frost.

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VEGETATION DIVISIONS
OF
WESTERN CANADA
Scale of Miles
50 0 50 100 150 200
LEGEND
Bush Country
Grove Belt (Mixed Prairie & Bush)
Prairie Country
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
Peace River
Mc Murray
Grande Prairie
EDMONTON
Red Deer
Calgary
Prince Albert
Saskatoon
Moose Jaw
REGINA
The Pas
Port Nelson
WINNIPEG
Lake Athabaska
Wollaston Lake
Reindeer Lake
Churchill Lake
Churchill
Nelson R
Lesser Slave Lake
Lake Winnipegosis
Lake Manitoba
Lake of the Woods
ROCKY MOUNTAINS
PRAIRIE
STEPPE
SCOTT
BEGINNING OF THIRD BASE
Prepared by
Natural Resources Intelligence Service
Dept. of the Interior

LANDS AND AGRICULTURE

Extending from the western boundary of Ontario to the Rocky mountains is a vast fertile area, the great western plains of Canada. From a breadth of 800 miles at the international boundary this area gradually narrows towards the north, as a result of the western extension of the Laurentian plateau. There are three steppes of different elevations in this great plain, rising from east to west. The lowest and most easterly has an elevation of 700 to 800 feet above the sea and includes the Red river valley. The range of hills in Manitoba, running from the Pembina mountains on the south to the Porcupine and Pasquia hills on the north, marks the beginning of the second steppe, which has an average elevation of 1,600 feet. The third and largest steppe includes most of Alberta, rising from 2,000 feet on the east to 4,000 feet as the foothills of the Rocky mountains are approached.

There are three well defined belts of vegetation in Western Canada. The southern part of the plains region is an area of treeless grassy prairies. It includes the semi-arid areas of southern Alberta and southwestern Saskatchewan, where climatic conditions have led to the development of irrigation on a large scale. The northern portions of the western provinces are covered with a forest of spruce, poplar, birch, tamarack and willow, the southern edge of the forest area running northwest from south of lake Winnipeg to the vicinity of Edmonton. Between the prairie and the bush country is a transition belt of mixed prairie and woodland, 50 to 125 miles in width, commonly called the grove or park belt. The striking differences between this belt in its natural state and the prairie belt to the south is its heavier vegetation. The grass is longer and coarser, scrub is common, and there are alternating open and wooded areas. Parts of the Peace River district in northern Alberta have similar characteristics.

Settlement of Lands

In Manitoba, Saskatchewan and Alberta, the public lands are under the control of the Dominion Government. The total area of the three provinces is 485,642,880 acres, of which it is estimated that nearly 170,000,000 acres can be utilized for agricultural purposes. At one time regarded as too cold and barren for agriculture, this territory has been settled only at a comparatively recent date, the first railway to open up the country being completed in 1885. With the delusion respecting climate and fertility swept away, with easy tillage due to the absence of forest to be laboriously cleared, with easy grades for railways, and with a free homestead policy to attract the pioneer, the settlement of Western Canada advanced with wonderful rapidity. The result has been the transformation of the prairies, and the effects of their development have been felt in almost every phase of industrial and commercial activity throughout the Dominion. In 1923 the area under field crops in Manitoba was 6,719,522 acres, in Saskatchewan 19,772,830 acres, and in Alberta 11,316,542, a total of 37,808,894 acres throughout the three provinces.

In all new agricultural countries the tendency is to develop those farming activities best suited to the area. The physical features, soil, and climate of the prairie provinces make them particularly favourably suited for grain growing, and the growing of cereal crops is, therefore, the dominant branch of the farming industry, the area under wheat, oats, barley, rye and flax in 1923 forming, respectively, 57·3, 23·8, 5·0, 3·4 and 1·6 per cent of the total area under field crops. Wheat is the most important crop, climatic conditions in the Canadian

west being conducive to the growth of the finest grade of milling wheat known to-day. The dry climate and the short but intensive growing season—long warm days and short cool nights—favour the growth of a crop of wheat known the world over as "Number 1 hard spring" or "Manitoba hard." Mixed with the softer grades of wheat in milling, it raises the standard of the finished product, and consequently is in demand by other wheat producing and milling countries. The value of the wheat crop of the Prairie Provinces in 1923 constituted over one-fifth of the total agricultural production of Canada.

Live Stock and Dairying

In parts of Saskatchewan and Alberta stock-raising is still carried on as a primary industry. The southern portion of these provinces seems particularly well suited for this purpose, and at one time was famous for its ranches of horses, cattle, and sheep. The increasing value of the lands, the demand for their use for grain growing, and the extension of cultivation in the West, have materially reduced the area available for ranching purposes. The increased number of farms carrying small herds more than maintains, however, the average live stock production. The Peace River district in Alberta and northern portions of Saskatchewan and Manitoba have large areas well adapted for grazing purposes.

It is only in recent years that the Prairie Provinces have taken seriously to dairying, but the industry has made wonderful progress, and the manufacture of dairy products in Western Canada has become one of the most pronounced features of Canadian agriculture. The vast areas of Western Canada still unoccupied or still devoted entirely to grain growing are well adapted to the production of milk, and in all probability the greatest expansion of the Canadian dairy industry in future will take place in these provinces. A feature of the butter made on the prairies is its excellent keeping quality, a very important consideration now that there is a surplus for export. The fine quality of the dairy products of Manitoba, Saskatchewan and Alberta is also shown by their popularity in open competition. The entries of these provinces in interprovincial and international exhibitions have repeatedly won leading prizes wherever shown.

Horticulture

The farmers of the Prairie Provinces still devote most of their attention to the growing of wheat, but it is altogether likely that, as the problem of conserving soil fertility becomes more pronounced, the vast grain-growing areas of Western Canada will be turned more to mixed farming. The trend is already very apparent, and agriculture in these provinces now includes diversified farming and animal husbandry. Horticulture is also gaining ground, and apples, plums, and small fruits are successfully grown in many parts of the country. Extensive and increasing assistance in the promotion of agriculture is rendered by the Dominion and provincial departments of agriculture, conveying to the man on the farm by various means facts essential to the successful prosecution of his calling.

The free homestead policy, whereby a qualified person may acquire a quarter-section of land by the performance of certain residence and improvement duties, still applies to the public lands in the Prairie Provinces, except the southern portions of Saskatchewan and Alberta, but with the exception of the northern districts of the three provinces suitable lands available for homestead entry within easy reach of railroads are practically exhausted. There are, however, tens of millions of acres of fertile lands lying idle within 10 and 15 miles of existing railways. These lands are privately owned and many of them can be purchased at reasonable prices. The Natural Resources Intelligence Service of the Department of the Interior, Ottawa, issues lists of such lands, giving brief particulars, including location, prices, terms and owners' names and addresses. These lists are available to prospective homeseekers and purchasers.

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Community Life and Social Conditions

Though the great agricultural production of Western Canada suggests a vast expanse of farm lands, it must not be concluded that urban and social facilities are lacking. Scattered over the face of the prairies are seventeen cities, the largest being Winnipeg, with a population of 179,000. In addition there are 163 towns and 489 incorporated villages. Thorough and comprehensive school systems care for the more important matter of education. Ready intercourse is provided by the Government-owned telephone systems. Ample provision is made for road allowances and the mileage of improved highways is being rapidly extended. With freedom of worship religious denominations are widely represented. Rural hospitals, municipally owned, and rural health nursing established along the most advanced lines, are proving of great benefit to agricultural settlers. The pleasures of rural life are furthered through the activities of the Agricultural Extension Services of the respective provinces. Through the organization of community clubs, competitions for boys and girls at agricultural fairs, the encouragement of school gardens, travelling libraries, lectures on various subjects, farm literature, and in many other ways the Agricultural Extension Services foster greater interest in agriculture and the social aspect of farm life.

—	Manitoba		Saskatchewan		Alberta		Manitoba, Saskatchewan, and Alberta	
	—	Proportion of total for Canada	—	Proportion of total for Canada	—	Proportion of total for Canada	—	Proportion of total for Canada
		Per cent		Per cent		Per cent		Per cent
Total area.....acres	161,172,480	6·75	161,088,000	6·75	163,382,400	6·84	485,642,880	20·34
Land..... "	148,432,640	6·44	155,397,120	6·73	161,872,000	7·02	465,701,760	20·19
Water..... "	12,739,840	15·75	5,680,880	7·03	1,510,400	1·87	19,941,120	24·65
Population, 1921.....	610,118	6·94	757,510	8·62	588,454	6·70	1,956,082	22·26
Urban.....	261,616	6·01	218,958	5·03	222,904	5·13	703,478	16·17
Rural.....	348,502	7·85	538,552	12·13	365,550	8·24	1,252,604	28·22
Arable land (estimated).....acres	25,000,000	8·3	70,000,000	23·3	74,000,000	24·7	169,000,000	56·3
Railway mileage, January, 1924.....miles	4,527	11·2	6,524	16·2	4,737	11·8	15,788	39·3
Elevators.....No.	696	17·3	2,304	57·3	936	23·2	3,936	97·9
Capacity.....Bus.	21,970,100	9·2	72,542,320	30·4	36,854,000	15·4	131,366,420	55·1
Areas under field crop, 1923.....Acres	6,719,522	11·7	19,772,830	34·5	11,316,542	19·7	37·808,894	65·9
Estimated gross agricultural wealth, 1923.....$	630,017,000	8·5	1,675,279,000	22·7	1,032,889,000	14·0	3,338,185,000	45·2
Lands.....$	315,245,000	9·5	877,042,000	26·4	523,221,000	16·0	1,715,508,000	51·9
Buildings.....$	113,005,000	8·1	216,938,000	15·6	121,765,000	8·8	451,168,000	32·5
Implements.....$	67,848,000	10·2	176,676,000	26·5	98,814,000	14·8	343,338,000	51·5
Live stock.....$	47,136,000	7·6	107,476,000	17·0	83,812,000	10·4	238,424,000	35·0
Poultry.....$	2,250,000	5·6	6,192,000	15·5	4,189,000	10·5	12,631,000	31·6
Animals on fur farms.....$	452,000	7·7	56.000	·9	138,000	2·3	646,000	10·9
Agricultural production.....$	84,081,000	6·3	291,439,000	21·7	200,950,000	14·9	576,470,000	42·9
Estimated average annual agricultural revenue, 1919-23.....$	135,723,000	8·3	316,036,000	19·4	179,825,000	11·0	631,584,000	38·7
Field crops.....$	109,402,000	9·4	274,376,000	23·7	141,081,000	12·1	524,859,000	45·3
Farm animals.....$	7,176,000	6·1	13,739,000	11·6	15,638,000	13·2	36·553,000	31·0
Wool.....$	125,000	2·4	219,000	4·2	484,000	9·4	828·000	16·1
Dairy products.....$	13,346,000	5·5	17,454,000	7·2	15,570,000	6·5	46,370,000	19·3
Fruits and vegetables.....$	1,860,000	3·2	1,332,000	2·4	1,572,000	2·7	4,764,000	8·2
Poultry and eggs.....$	3,764,000	7·4	8,894,000	17·5	5,450,000	10·7	18,108,000	35·6
Fur farming.....$	(1)50,000	3·7	(2) 29,000	2·1	(3) 30,000	2·2	109,000	8·0

(1) Three years, 1921–23.
(2) Four years, 1920–23.
(3) Five years, 1919–23.

DETAILED STATEMENT OF SURVEYED AREAS IN MANITOBA, SASKATCHEWAN AND ALBERTA, JANUARY 1, 1923

Surveyed area	Manitoba	Saskatchewan	Alberta	Total
Under homestead (including military homesteads)	8,235,600	27,657,400	18,217,200	54,110,200
Under pre-emption, purchased homesteads, sales, half-breed scrip, bounty grants, special grants, etc.	5,109,100	7,533,100	3,821,300	16,463,500
Granted to railway companies	3,566,997	15,177,063	13,120,014	31,864,074
Granted to Hudson's Bay Company	1,206,400	3,184,000	2,177,800	6,568,200
School land endowment (1–18 of area surveyed in sections)	1,637,700	3,943,500	3,756,000	9,337,200
Sold subject to reclamation by drainage	.....	23,188	34,837	58,025
Sold under irrigation system	.....	76,832	981,877	1,508,709
Under timber berths	961,900	675,800	1,347,200	2,984,900
Under grazing leases	95,371	2,929,037	2,870,957	5,895,365
Forest reserves and parks	2,901,939	5,925,890	16,807,347	25,635,266
Reserved for forestry purposes (inside surveyed tract)	323,100	1,074,300	1,677,500	3,074,900
Road allowances	977,132	1,468,330	1,287,406	3,732,868
Parish and river lots	505,361	84,015	118,565	707,941
Indian reserves	433,957	1,071,061	1,368,337	2,873,355
Indian reserves surrendered	88,695	410,440	302,675	801,810
Water-covered lands (inside surveyed tract)	4,260,500	1,904,820	2,297,160	8,462,480
Area undisposed of	5,511,500	5,917,800	15,586,000	27,015,300
Total surveyed area	35,815,252	79,056,666	85,772,175	200,644,093

ACREAGE AND PRODUCTION OF PRINCIPAL FIELD CROPS

—	Manitoba		Saskatchewan		Alberta	
	Acreage	Production	Acreage	Production	Acreage	Production
		bushels		bushels		bushels
Wheat—						
1900	1,965,193	18,352,929	487,170	4,306,091	43,103	797,839
1910	2,760,371	34,125,949	4,228,222	66,978,996	879,301	9,060,210
1920	2,705,622	37,542,000	10,061,069	113,135,330	4,074,483	83,461,000
1923	2,915,915	32,804,000	12,791,000	252,622,000	5,958,361	166,834,000
Oats—						
1900	573,848	10,592,365	141,517	2,270,057	118,025	3,791,259
1910	1,209,173	30,378,379	1,888,359	58,922,791	783,072	16,099,223
1920	1,873,954	57,657,000	5,106,822	141,549,000	3,089,700	115,091,000
1923	1,834,504	58,704,000	4,898,771	218,075,000	2,299,546	114,977,000
Barley—						
1900	139,660	2,666,567	11,798	187,211	11,099	287,343
1910	416,016	6,506,634	129,621	3,061,007	121,435	2,480,165
1920	839,078	17,520,000	510,014	10,510,500	480,699	12,739,000
1923	1,156,122	25,726,000	640,402	19,278,200	383,858	14,774,000
Flax—						
1900	14,404	81,898	226	2,403	101	710
1910	34,684	176,675	506,425	3,893,160	31,076	78,480
1920	146,455	1,157,800	1,140,921	5,705,000	103,700	726,000
1923	139,519	1,395,000	465,653	5,493,800	15,000	156,000
Rye—						
1900	937	7,085	1,291	12,843	1,048	17,649
1910	2,738	29,205	754	11,639	6,672	109,006
1920	148,602	2,318,600	172,449	2,535,000	160,960	3,420,000
1923	337,528	4,620,000	568,924	8,582,000	396,758	7,640,000
Other Grains—						
1900	.....	.....	.....	.....	.....	.....
1910	771	13,635	873	11,579	2,085	40,927
1920	32,962	674,200	21,673	665,000	13,602	340,000
1923	15,138	336,000	32,396	1,021,000	15,093	548,000
Potatoes and Roots—						
1900	16,766	2,123,447	6,529	784,224	4,480	711,672
1910	28,218	3,362,513	25,036	3,092,776	22,498	2,811,119
		Cwt.		Cwt.		Cwt.
1920	44,404	2,584,000	64,263	5,689,100	55,300	5,892,500
1923	33,511	2,512,0 0	52,603	4,955,000	49,214	5,814,000
Fodder Crops—		tons		tons		tons
1900	46,660	53,184	5,961	10,005	10,875	185,599
1910	142,813	139,681	38,551	46 305	153,824	133,187
1920	229,233	393,710	261,690	414,500	411,077	575,900
1923	287,195	617,400	323,081	755,600	2,198,712	4,944,000

NUMBERS OF FARM LIVE STOCK AND POULTRY

Province and year	Horses	Milch cows	Other cattle	Sheep	Swine	Poultry
Manitoba—						
1901	163,867	141,481	208,405	29,464	126,459	1,167,876
1911	280,384	155,328	280,240	37,322	188,416	2,585,903
1920	356,628	221,785	536,189	156,716	212,542	3,373,500
1923	362,407	253,715	437,996	93,162	291,236	3,289,051
Saskatchewan—						
1901	83,461	56,634	212,145	73,097	27,753	297,344
1911	507,468	181,168	452,470	114,216	286,295	3,393,403
1920	939,805	354,507	969,555	160,918	321,900	6,607,140
1923	1,137,301	403,813	1,131,273	137,240	679,867	6,192,500
Alberta—						
1901	92,661	46,101	276,859	87,104	46,069	251,799
1911	407,153	147,649	592,076	133,592	237,511	2,453,117
1920	741,851	305,607	1,050,334	383,424	286,556	2,399,855
1923	829,143	410,242	1,110,682	239,174	706,681	6,630,163

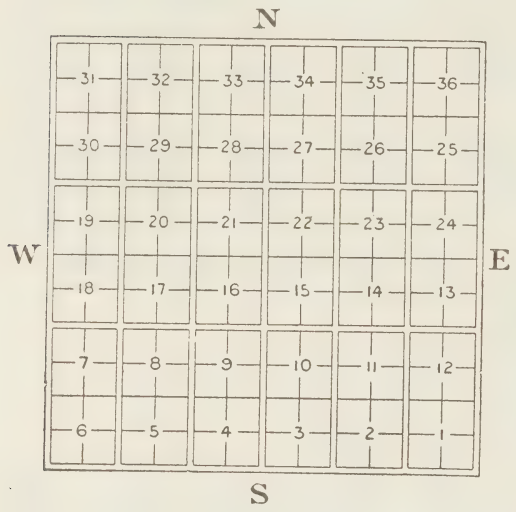
PRODUCTION AND VALUE OF CREAMERY BUTTER AND FACTORY CHEESE

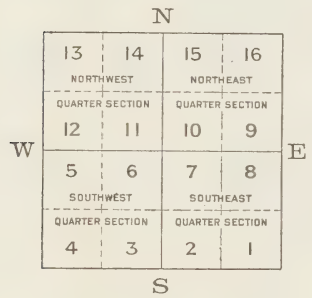
Province and year	Creameries	Cheese factories	Combined butter and cheese factories	Total establishments	Creamery butter		Factory cheese	
	No.	No.	No.	No.	lbs.	$	lbs.	$
Manitoba—								
1900	26	40	3	69	1,557,010	292,247	1,289,413	124,025
1910	21	20	1	42	2,050,487	511,972	694,713	81,403
1920	53	4	0	57	7,578,549	4,282,731	116,229	31,611
1922	44	3	0	47	10,559,601	3,603,491	102,354	16,747
Saskatchewan—								
1900	4	1	.....	5	143,645	29,362	6,000	868
1910	25	2	.....	27	1,548,696	381,809	26,730	3,396
1920	46	1	.....	47	6,638,656	3,727,140	28,367	7,790
1922	59	1	.....	60	8,901,144	3,066,573	12,448	2,026
Alberta—								
1900	17	1	0	18	601,489	123,305	21,693	3,102
1910	43	11	2	56	2,149,121	533,422	193,479	23,473
1920	48	2	5	55	11,821,291	6,555,509	398,750	110,355
1922	46	6	8	60	15,417,070	5,126,844	931,992	183,860

System of Survey of Dominion Lands

Dominion lands are laid off in square townships, containing thirty-six sections of as nearly one mile square as the convergence of meridians permits. Such sections are bounded and numbered as shown in the township diagram below.

PLAN OF A TOWNSHIP





A section contains six hundred and forty acres. Each section is divided into four quarter-sections containing one hundred and sixty acres each.

Road allowances are provided as indicated by double lines on the above diagram, namely: running north and south between each section; running east and west, along the township lines and the lines two miles distant therefrom.

Townships are numbered consecutively from south to north. Each row of townships thus formed is given a range number. The ranges start from a Principal meridian, and are numbered consecutively. The 1st meridian is a few miles west of Winnipeg. Ranges number from this meridian as a starting point, both eastward and westward. In regard to all other meridians, ranges number westward only.

It will be seen that when numbers for the township, range, and meridian are given, the exact location of the township is known.

Each section is deemed to be divided into forty-acre areas, known as legal sub-divisions and numbered and bounded as in the diagram.

Synopsis of Dominion Land Regulations

All surveyed agricultural Dominion lands in Manitoba, Saskatchewan, Alberta, and 3,500,000 acres in northern British Columbia known as the Peace River block, which are not disposed of and not reserved or occupied, are open to homestead entry, except lands south of the south boundary of township 16 in the provinces of Saskachewan and Alberta. Islands are reserved from entry.

The sole head of a family, or any male over eighteen years old, may homestead one quarter-section of available Dominion land (160 acres, more or less). Applicants need not be British subjects at the date of application for entry, but are required to declare their intention of becoming British subjects. Evidence of naturalization must be furnished before patent is issued, except in cases for which provision is made by law. Application for homestead entry may be made by a person eligible under the provisions of the Dominion Lands

Act, either at the Land Agency for the district in which the land is situated, or at the office of a sub-agent authorized to transact business in the district. Entry by proxy may be made at any Dominion Lands Agency (but not sub-agency), on certain conditions. An entry does not include the mineral or water rights. An agent may reserve one available quarter-section as a homestead for a minor over seventeen years of age until he is eighteen.

An entry fee of $10 is charged, and the settler must erect a habitable house upon the homestead and reside therein for at least six months in each of three years. He must do some cultivation in each of the three years, and at the end of that period must have at least thirty acres of the homestead broken, of which twenty acres must be cropped. Where the land is difficult to cultivate on account of scrub or stone, a reduction may be made in the area of breaking required.

Live stock may be subsituted for cultivation on certain conditions, where the land is not suitable for grain growing.

A homesteader may perform the required residence duties by living on a farm of not less than eighty acres within nine miles of his homestead. Such farms must be solely owned by the homesteader, or by his father, mother, son, daughter, brother or sister. If the residence is performed in this way it is not necessary to erect a house on the homestead, but fifty acres must be broken on the homestead, of which area thirty acres must be placed under crop, a reasonable proportion of the work to be done in each year after date of entry.

For further information regarding homesteading write to the Dominion Lands Branch, Department of the Interior, Ottawa.

Synopsis of Regulations Governing the Granting of Grazing and Hay Leases on Dominion Lands and of Hay Permits on Dominion and School Lands

Grazing leases of vacant Dominion lands unfit for agricultural purposes may be issued to British subjects for a period of ten years. The lands covered shall not be open to settlement during continuance of the lease. In the granting of leases preference shall be given applicants who own adjoining lands. All applications for leases should be made to the Agent of Dominion Lands for the district, on a form supplied by him for the purpose, and should be accompanied by an amount equal to the rental for six months on the tract applied for.

No person or company shall be permitted to obtain under lease by original grant more than 12,000 acres.

The lessee shall, within each of the three years from the date of the lease, place upon the tract of land leased not less than one-third of the whole number of stock which is required to be placed upon the leasehold, namely, one head of cattle or five head of sheep for every thirty acres of land covered by the lease, and shall during the rest of its term maintain stock thereon in that proportion, and at least 25 per cent of the stock shall be breeding stock.

The lessee shall pay an annual rental at the rate of two cents per acre for every acre covered by the lease, payable half-yearly in advance.

The lessee shall be entitled to the hay on his leasehold, and he may cultivate any portion of his leasehold for the purpose of growing winter feed for his stock, but shall not have the right to dispose of any such feed or hay by barter or sale. Upon the expiration of the lease the lessee shall have the prior right to a renewal lease on complying with the regulations then in force.

Permits to cut hay, on vacant Dominion or school lands, may be obtained annually. A permit fee of one dollar shall be charged.

Permits issued shall be subject to dues of twenty-five cents per ton for domestic use, by actual settlers, and one dollar per ton for hay cut by other than settlers and for sale.

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Hay permits are issued to cover one quarter-section, but more than one permit may be obtained by an applicant provided he has the necessary number of stock. Hay permits are issued on the basis of three tons of hay to each head of stock.

A lease to cut hay on unoccupied Dominion lands may be issued to a settler who owns at least ten head of stock for a term of five years at an annual rental of fifty cents per acre. No person may lease more than forty acres.

Leases may be granted to the Provincial Governments of Manitoba, Saskatchewan, and Alberta for community grazing purposes for a term of ten years at an annual rental of not more than two cents per acre.

More detailed information regarding the granting of grazing leases, also hay leases and permits on Dominion lands, may be obtained from the Controller of the Timber and Grazing Lands Branch, Department of the Interior, Ottawa.

Grazing Permits on School Lands

School lands comprise sections 11 and 29 in every surveyed township in Manitoba, Saskatchewan, and Alberta, and have been set apart by Act of Parliament as an endowment for the purposes of education and comprise approximately one-eighteenth of the surveyed lands in these provinces.

Grazing permits may be issued on school lands available for the purpose in the provinces of Manitoba, Saskatchewan, and Alberta, for one year, or portion thereof, upon payment in advance at the rate of six cents per acre per annum and an office fee of one dollar. The permits shall, except in cases where issued for a portion of a year only, be operative from the first day of April of the year in which issued, and shall expire on the thirty-first day of March following.

Applications to acquire grazing permits on school lands must be filed with the Agent of Dominion Lands for the district in which the lands are situated, or with a sub-agent for such district, for transmission to the agent, on the form prescribed for the purpose, and must be accompanied by rental and office fee as set forth above.

Priority of application shall, at the option of the minister, be based upon the date of receipt of such application, accompanied by the required rental, in the office of the Agent of Dominion Lands for the district in which the land is situated.

Grazing permittees shall, at the discretion of the minister, have prior right to renewal permits year after year until such time as the Minister shall see fit to dispose of the land by sale or otherwise, provided applications for such renewals are filed on the prescribed form with the Agent of Dominion Lands for the district on or before the first day of February next preceding the termination of the permit, accompanied by the ensuing year's rental and office fee, otherwise the permittees' right to renewal shall lapse.

Holders of grazing permits shall, upon application to the Agent of Dominion Lands for the district and upon payment of an office fee of one dollar, be entitled to free permits to cut on the lands whatever hay they require for their own use, but not for barter or sale. The permittees may also acquire permits to cut hay from the land for the purpose of barter or sale upon payment to the Agent of Dominion Lands for the district of an office fee of one dollar and dues at the rate of one dollar per ton for the quantity of hay to be cut for the purpose.

Full particulars in regard to grazing permits on school lands will be furnished upon application to the Secretary, Department of the Interior, at Ottawa, or to any Agent of Dominion Lands.

Agricultural Loans

Summary of Legislation Providing for Farm Loans and Rural Credits

MANITOBA

The Manitoba Farm Loans Act

This Act provides that persons residing or intending to reside on lands within the province may obtain, through the Manitoba Farm Loans Association, on first mortgage security, loans up to fifty per cent of the appraised value of the property offered, but not exceeding $10,000. Loans extend over a period of thirty years, at a rate of interest of 7 per cent per annum, repayment being made on an amortization basis by equal annual payments composed of principal and interest. Loans may be made for the purpose of acquiring or improving land, the erection of farm buildings, the purchase of live stock, the discharge of liabilities, or for any other purpose calculated to increase land productiveness. Application for loan should be made to the Secretary of the Manitoba Farm Loans Association, Winnipeg, Manitoba.

The Manitoba Rural Credits Act

The Manitoba Rural Credits Act provides for the organization of rural credit societies to enable individual shareholders to obtain short term loans for the purchase of seed, feed, implements, stock, the erection of silos, and for the carrying on of farm operations. To establish a rural credit society a minimum of thirty-five farmers must subscribe at least $100 each, of which 25 per cent must be paid up; the rural municipality and the province each subscribe one-half of this amount, also paying 25 per cent. Each society is managed by a board of nine directors, three of whom are elected by the shareholders, three appointed by the municipality, and three by the province. Interest is at the rate of 7 per cent per annum and all loans are repayable during the calendar year in which they are made, but are renewable at the directors' discretion.

The organization of a rural credit society is initiated by not less than fifteen farmers applying by petition to the provincial secretary for permission to be incorporated.

SASKATCHEWAN

The Saskatchewan Farm Loans Act

This Act authorizes the Saskatchewan Farm Loan Board to make loans to farmers for the acquisition, development or improvement of land, and for the discharge of liabilities previously incurred for such purposes. Loans are made on mortgage security and must not exceed 50 per cent of the Board's valuation of the property. Interest is at the rate of 5½ per cent per annum, and principal and interest are repayable in thirty years on the amortization plan. Application for loan should be made to the Saskatchewan Farm Loan Board, Regina.

The Live Stock Purchase Act

This Act provides for the purchase of live stock by the provincial government to be sold to agriculturists for cash, or partly cash and partly credit, in which latter case a lien is taken on the animals till they are paid for. Credit will be given for a term not exceeding three years and to the extent of not more than 75 per cent of the value of the animals. Interest at the rate of 6 per cent before maturity and 8 per cent thereafter will be charged on all accounts. Application for purchase should be made to the Live Stock Commissioner, Department of Agriculture, Regina.

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ALBERTA

The Alberta Co-operative Credit Act

This Act authorizes the formation of co-operative credit societies for the purpose of lending money to farmers on joint municipal and government guarantee. To establish a society a minimum of thirty farmers must subscribe for stock to the value of $3,000, of which 20 per cent must be paid up. Each society is managed by a board of eight directors, four of whom are elected by the subscribers, three appointed by the province, and one appointed by the municipality. Short term loans are made to members for the purchase of seed, feed, implements, stock, and for the carrying on of farming operations. The rate of interest is not fixed but must not exceed 7½ per cent per annum. The incorporation of a co-operative society is obtained by a petition signed by fifteen farmers who have subscribed for stock to the value of $1,500 with 20 per cent paid in cash.

SYNOPSIS OF SOLDIER SETTLEMENT ACT

The Soldier Settlement Act applies to ex-members of the Canadian Expeditionary Force who served overseas or who, on account of some disability due to service in Canada, have received or are receiving a pension or gratuity in lieu thereof; to widows of men who died on active service and who would have been eligible for the benefits of the act; to members of the Imperial or Allied Forces who lived in Canada prior to the war; and to Imperial or Dominion Forces who served outside of the country of their enlistment. In the case of the last named, however, they are required to gain experience on farms in Canada before they will be granted qualification certificates.

The Soldier Settlement Board may grant to eligible and qualified returned men assistance by way of loans to enable them to take up farming. In the spring of 1924 regulations were adopted under which a limit was fixed to the time for granting qualification certificates entitling holders to the benefits of government loans under the Soldier Settlement Act. Except in cases where the land is owned by the Soldier Settlement Board or by the settler, new applications for the benefits of the Act are not admissible. To such persons who have already qualified or are in training under the Act generous provisions are made for establishing them on farms.

Loans may be granted as follows:—

(1) On the purchase of a farm: a maximum of $4,500 for the land purchase; $2,000 for live stock and equipment; $1,000 for permanent improvements, in all $7,500. On the purchase of land and buildings at a price of $5,000, the soldier settler is required to pay cash down ten per cent, or $500, and the Soldier Settlement advances $4,500.

(2) On Dominion lands, up to $3,000 for live stock, implements and permanent improvements.

(3) On land owned by the settler, up to $5,000 for the removal of encumbrances, the purchase of live stock and the erection of permanent improvements.

Loans for all purposes run for twenty-five years with interest at the rate of 5 per cent per annum.

For more detailed information regarding soldier settlement write to the Soldier Settlement Board, Ottawa.

IRRIGATION

Under the provisions of the Irrigation Act, 1894, the ownership of all surface water supply in the provinces of Alberta, Saskatchewan and northern Manitoba is vested in the Crown. This Act provides means for granting rights to use water for irrigation, domestic, municipal, industrial, and other (unenumerated) purposes.

All licenses for the use of water are conditional upon continual beneficial use and may be cancelled for non-use or waste of water.

The general policy has been to administer the water resources within the purview of the Irrigation Act as a trust, and to limit the grants of the right to use water to actual beneficial uses, chiefly domestic, municipal, industrial, irrigation, and "other" purposes.

The Dominion Government assumes responsibility for the making of general surveys and investigations to determine the volume of available water supply and the feasibility of applying it to irrigation or other beneficial uses in the territory within the purview of the Act. The policy of the Department has been to assist irrigation development to the fullest extent. To that end the services of its engineers have always been at the disposal of any settler who chose to apply for the right to divert water.

Alberta

The semi-arid zone of Alberta contains an approximate area of 23,000,000 acres lying south of township 34. Much of this area is, however, unsuited for irrigation on account of the varying altitudes and general topography, while certain sections along the foothills receive sufficient rainfall. It is estimated that there is not enough controllable water available to irrigate more than 2,500,000 acres in this province. In this area irrigation works have been constructed capable of irrigating 1,200,000 acres, while completed surveys show the feasibility of economically applying water to an additional area of approximately 500,000 acres.

Saskatchewan

With the exception of the Robsart-Vidora Project, containing 10,000 irrigable acres, there is very little immediate prospect of extensive irrigation development in Saskatchewan. A great many small projects, mainly for irrigating hay meadows, as well as hundreds of domestic and industrial water supply schemes, have been located, surveyed, and constructed under the supervision of Dominion Government engineers.

Synopsis of the Provisions of the Irrigation Act for the Guidance of Applicants for Water Rights

Preliminary Surveys.—In the majority of cases where water is to be diverted for domestic or irrigation purposes, a preliminary survey is required to prove the scheme feasible before an application is filed for a water right. If any objection is raised by the owners of land whose property it may be necessary to cross, the applicant may obtain a license from the Commissioner of Irrigation to make such preliminary survey.

Memorials.—Every applicant for a water right for any of the purposes authorized by the Irrigation Act is required to file a memorial containing information as to the character and location of the works to be constructed and the rights applied for. Blank forms of memorial may be obtained from the Commissioner of Irrigation, Calgary, Alberta.

Permission to Construct Ditches or Other Works Across Road Allowances or Surveyed Highways.—If the proposed scheme includes any crossings over road allowances or public highways the consent must be obtained of the Minister of Public Works for the province within which such works are situated before the works are constructed.

Permission to Construct Works Across Railway Lines.—In cases where the crossing of a railway line by an irrigation ditch or other works is required, permission must be had from the railway company or the Board of Railway Commissioners, as may be required.

Plan to Accompany Applications.—The memorial filed in connection with an application for a water right must be accompanied by both a general and a detail plan, showing the location and character of the proposed works. The general plan should show the location of the works to be constructed and the lands to be irrigated therefrom or which are affected thereby, as a record of the rights applied for, and the detail plan all the main details of the structures to be erected in connection with the proposed undertaking.

Full and specific instructions regarding the preparation of these plans will be forwarded upon application to the Commissioner of Irrigation, Calgary, Alberta.

Notices.—Section 19 of the Irrigation Act provides for the publication of notice of rights applied for. This notice will be prepared by the Commissioner of Irrigation as soon as the application has been approved, and will be forwarded to the applicant with the necessary instructions for publication in newspapers named by the commissioner.

Approval of Application and Authorization to Construct Works.—When the memorial and plans have been approved by the commissioner, the required notice of the application published, and permission has been given to construct the proposed works across road allowances, etc., authorization will be issued for the construction of the works as shown by the memorial and plans filed, and a period of time will be specified within which the works should be completed.

Right-of-Way for Proposed Ditches and Other Works.—All necessary right-of-way should be acquired by applicants for water rights before proceeding to construct any works across lands not owned or controlled by them.

To aid in irrigation development the Government grants free right-of-way over vacant Dominion lands. If right-of-way is required over privately-owned lands, an agreement or easement granting right-of-way over such land should be secured in triplicate, and submitted to the Commissioner of Irrigation for registration.

Agreements to Use Water from any Canal, Ditch or Reservoir.—Where it is desired to irrigate from any canal, ditch or reservoir lands which are not the property of the applicant for the water right, an agreement with each individual owner for the irrigation of such lands must be filed with the Commissioner of Irrigation.

Application to Use Water through any Canal, Ditch or Reservoir not the Property of the Applicant.—When an applicant for a water right wishes to take water through another person's works, he must submit a memorial and plans in the usual manner; also an agreement, in quadruplicate, which shall bind the party owning or operating the original works to carry the applicant's water through these works from the point of intake to the point where the applicant's own works commence.

License to Divert and Use Water.—When irrigation works in connection with any application have been completed, and all questions regarding right-of-way, agreements to use water, etc., have been settled, an inspection of the works will be made by an officer of the Department, and, if it is found that the works have been constructed in accordance with the memorial and plan filed, a water license will be issued to the applicant upon payment to the Commissioner of Irrigation of the regulation fee.

NOTE.—For fuller information apply to the Director of Water-Power and Reclamation Service, Department of the Interior, Ottawa, or the Commissioner of Irrigation, Calgary, Alberta.

Prepared in the Natural Resources Intelligence Service
Department of the Interior

WATER-POWERS

Cheap power is essential to the development of other natural resources. Water-power is a prime mover which can be used directly for mechanical operations or indirectly through the medium of electricity. In other words, power can be used either at the site or at a distance therefrom. Improvements in electric transmission have greatly widened the effective radius of water-power and have brought distant markets hitherto unsupplied within reach of the power site.

Alberta, Saskatchewan, and Manitoba are peculiarly fortunate in having within their boundaries important water-powers and fuel resources. With the proper coördination of the administration, investigation, and exploitation of these two resources there need be no doubt about the fuel and power needs of the three provinces being adequately met.

In the southern and most thickly populated portions of these provinces, where agriculture is the principal industry, the river gradients are flat and opportunities for water-power development are few. In the Rocky mountains, however, and in the Laurentian formations of northern Alberta and Saskatchewan and northern and eastern Manitoba, there are many large rivers with numerous and important power-sites readily feasible of development. The Bow and other upper Saskatchewan waters in the west, the Peace, Athabaska, Slave, Churchill, Reindeer, Saskatchewan, and Nelson in the north, and the Winnipeg in the east, afford vast power possibilities which only await a market for their complete development.

In northern Saskatchewan and in northern and eastern Manitoba recent discoveries of valuable mineral deposits will doubtless provide a market for a considerable development of hydro-electric power, while untouched resources of timber throughout the north will require the development of many of the water-powers for their proper exploitation.

Utilization of water-power has, up to the present, been confined chiefly to the areas surrounding the centres of Winnipeg and Calgary. On the Winnipeg river the city of Winnipeg, the Winnipeg Electric Company, and the Manitoba Power Company have installations which total 161,000 horse-power, with an ultimate capacity of 307,500 horse-power. This power is transmitted to Winnipeg and is also utilized in Selkirk, Stonewall, Transcona, Portage la Prairie, Carman, Roland, and Morden. On the Bow river the Calgary Power Company possesses two hydro-electric developments, with installations totalling 31,500 horse-power. These plants, together with a small installation on the same river owned by the Calgary Water Power Company, provide the City of Calgary with hydro-electric power. Other small water-powers have been developed in the vicinity of Lake Louise, Banff, and Bassano in Alberta, and in Manitoba at Minnedosa and Brandon.

A complete investigation of the power possibilities of the Prairie Provinces has by no means been made, and detailed information is available for only a few of the possible power sites. Sufficient general information has been gathered, however, to permit of a fair estimate of the amount of power available on the main rivers.

The following table outlines briefly the power available on the main rivers of Manitoba, Saskatchewan and Alberta:—

UNDEVELOPED POWER

River	Horse power at ordinary minimum flow 80% efficient	Horse power available for six months of the year 80% efficient	Developed power
Manitoba—			
Berens	12,567	17,938	
Big Black	4,414	6,875	
Bloodvein	4,100	6,670	
Burntwood	8,800	26,400	
Churchill	372,100	468,000	
Dauphin	11,200	15,072	
Grass	5,131	15,380	
Hayes	5,149	17,128	
Minnedosa	.....	.....	1,125
Nelson	2,443,320	3,948,170	
Pigeon	29,690	39,075	
Saskatchewan	9,000	196,300	
Waterhen	3,770	5,030	
Winnipeg	171,300	305,300	160,900
Total	3,130,541	5,067,33	162,025
Saskatchewan—			
Black	72,400	217,185	
Churchill	298,500	366,400	
Geikie	2,450	7,359	
Rapid	4,660	5,700	
Reindeer	82,300	106,500	
North Saskatchewan	3,170	13,700	
Saskatchewan	72,300	301,300	
Sturgeon-weir	3,580	5,730	
Total	539,360	1,023,874	
Alberta—			
Athabaska	98,538	336,590	
Bow	14,852	37,318	32,380
Brazeau	2,360	7,150	
Cascade	.....	.....	1,000
Clearwater	3,925	11,800	
Elbow	3,400	10,500	
Peace	105,500	313,200	
North Saskatchewan	7,960	33,080	
Red Deer	1,895	8,195	
Slave	222,500	506,000	
Total	460,930	1,263,833	33,380

The water-powers of the Prairie Provinces are administered by the Department of the Interior in accordance with the Dominion Water Power Act of 1919 and regulations pursuant thereto made by Order in Council of October 31, 1921. A brief summary of these regulations follows:—

Synopsis of Dominion Water Power Regulations

1. Every applicant for a license to divert, use or store water for power purposes shall file with his application to the Director of Water Power physical, financial and other information as outlined in the regulations.

2. Publication of notices of this application and local hearings in regard thereto may be required.

3. A survey permit, if necessary, may be issued to the applicant to enable him to make the surveys and investigations necessary to the preparation of general lay-out plans. This conveys no priority to the applicant.

4. A priority permit may be issued in regard to the consideration of general lay-out plans. This priority is limited to one year but may be extended under certain conditions; it is not granted unless the preliminary information as to the feasibility of the scheme and the financial ability of the applicant is satisfactory. Priority permits are designed to protect the applicant where the surveys and investigations necessary to the preparation of general lay-out plans will involve considerable expense; the permit does not lay the Minister under any obligation to grant a concession.

5. If the general lay-out plans are satisfactory, and the Director recommends the granting of a concession, the Minister may issue an Interim License, designed to cover the construction period of works. This license embodies the special terms of the concession in regard to construction plans, expenditures, power to be developed, date of completion, etc., also the terms and principal conditions of the final license.

6. After the issue of the interim license, general construction plans must be submitted and approved, certain rentals and deposits also become due, and there is provision for inspection, extensions of time, penalties for default, operation pending issuance of final license, also other appropriate provisions for the protection of the Crown and of the interim licensee.

7. Upon the satisfactory completion of the development the Minister is required to issue a Final License, the term of which shall not exceed fifty years. There is provision for renewal or termination of this license. If the license is terminated, compensaton is provided upon the basis set forth in the regulations. Rentals based upon the capacity of the installation are imposed; the rental is subject to revision at the end of the first twenty years of the license and every ten years thereafter; the principles of such revision and the protection provided to the licensee are set forth in the regulations. The regulation of rates charged to consumers is also provided for.

8. Other provisions concern care of lands, maintenance and operation of works, increase of output up to capacity, securing enlarged development, stream regulation and control, appraisals, accounting, transfers, penalties for default, and also some miscellaneous provisions.

9. Where the application is for a small water-power not exceeding 500 horse-power capacity, special simplified regulations may be promulgated, but in such case the term is reduced to twenty-years, with renewals for further periods not exceeding five years each; no compensation is provided unless the development is taken over before expiry of the term, but the licensee may remove his machinery.

For more detailed information regarding water-power regulations write to The Director of the Dominion Water Power and Reclamation Service, Department of the Interior, Ottawa.

MINERALS

Though the Prairie Provinces are chiefly agricultural, their mineral production is important. In 1923 these three provinces produced minerals to the value of $34,750,344, or 16.2 per cent of the Dominion's total mineral production. Of this amount Alberta yielded (chiefly in her coal output) 91 per cent; Manitoba, 5 per cent; and Saskatchewan, 4 per cent.

This mineral wealth, which is largely non-metallic, is admirably located for domestic uses. In the prairie section, where there is an absence of forest fuel and available water-power, coal supplies the need, and the shortage of stone and timber for building purposes is compensated for by an abundance of brick clay.

In the more northerly regions prospecting has been carried on only during the last few years, but has resulted in the discovery of gold, copper and lead in northern Manitoba, various minerals, such as glass sand, soapstone, kaolin, mineral pigments, and gold in northern Saskatchewan, and placer gold in northern Alberta.

Bituminous Sands

In the vicinity of McMurray, in northern Alberta, occur extensive beds of bituminous or tar sands, containing, on an average, 15 to 18 per cent bitumen. These beds extend along the Athabasca river for more than 100 miles, and vary from 25 to 200 feet in thickness. Much of the deposit. however, is of little economic value because of the excessive overburden. The bituminous sand has been successfully utilized in its native state for paving, but transportation costs prohibit any extensive use for this purpose. Several companies have leased claims in the McMurray area and are experimenting with the idea of extracting the bitumen and utilizing it for road-making or the production of gasoline, kerosene and lubricating oils by destructive distillation.

Building Stone

There are two varieties of building stone of outstanding importance, namely, Tyndall limestone, from the Tyndall district, north of Winnipeg, in Manitoba, and Paskapoo sandstone, which is found in a wide belt bordering the Rockies in Alberta. Some granites and sandstones suitable for building purposes exist east and southeast of lake Winnipeg, and various schists and quartzites in Alberta may also be utilized. Granite and limestone are found in northern Saskatchewan, but in areas far removed from transportation facilities. Limestone, which may be used for road-rubble, cement, pulp and paper manufacture, and for lime, is found conveniently situated in Manitoba and Alberta.

Coal

In all three provinces coal is found and is mined in Alberta and Saskatchewan. It ranges from anthracite to bituminous and lignite. The output from the Prairie Provinces in 1923 was 7,288,430 short tons, being 46 per cent of Canada's total coal production. Alberta, which is estimated to contain at least 10 per cent of the world's coal reserve, produced the largest quantity of all the coal mined by any province in Canada in 1923, namely, 6,849,000 tons, of which anthracite composed 1 per cent, bituminous 47 per cent, sub-bituminous 6 per cent, and lignite 46 per cent. The largest producing fields of the province are in the Lethbridge, Edmonton, and Drumheller districts, where lignite is mined chiefly for domestic use, while the Brazeau, Yellowhead Pass, Mountain Pass, and Crowsnest Pass fields produce excellent bituminous steam and coking coals. No anthracite is at present mined at Bankhead. At December 31, 1923, there were 258 mines in operation in Alberta, of which 70 were of large size.

Map showing
PRINCIPAL MINERALS
of
MANITOBA SASKATCHEWAN
and
ALBERTA
Scale of Miles
LEGEND
In operation
Deposits
Coal Areas
NOTE:-For possible petroleum areas see text.
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
LAKE
Hay River
Peace River
Dunvegan
Grande Prairie
Lesser Slave L.
Athabasca River
Athabasca
Lake Athabaska
Waterways
Mc Murray
Wetaskiwin
Edmonton
Lloydminster
Battleford
Prince Albert
Saskatoon
Humboldt
Herbert
Macklin
Calgary
Medicine Hat
Lethbridge
Swift Current
Moose Jaw
REGINA
Weyburn
Yorkton
Dauphin
Portage la Prairie
Brandon
Souris
Emerson
WINNIPEG
Lake Winnipegosis
Lake Manitoba
Lake of the Woods
Rice L.
Gods L.
Cross L.
Ross L.
Island L.
Norway House
Port Nelson
Churchill R.
Nelson R.
Hayes R.
Reindeer Lake
Southern Indian L.
Wintering L.
Wekusko L.
Flin Flon
Lac la Ronge
Amisk
Waskada
Virden
Deloraine
Melita
Boissevain
Killarney
Pierson
Estevan
Weyburn
Moosomin
Yellow Grass
Assiniboia
Gravelbourg
Maple Creek
Shaunavon
Eastend
Wood Mountain
Val Marie
Consul
Bassano
Brooks
Vulcan
High River
Okotoks
Claresholm
Macleod
Cardston
Pincher Creek
Crowsnest
Blairmore
Coleman
Frank
Bellevue
Hillcrest
Fernie
Michel
Sparwood
Elkford
Natal
Corbin
Cranbrook
Kimberley
Fort Steele
Wardner
Jaffray
Elko
Moyie
Yahk
Creston
Nelson
Trail
Rossland
Grand Forks
Greenwood
Midway
Phoenix
Kettle River
Boundary Falls
Republic
Curlew
Oroville
Tonasket
Okanogan
Omak
Conconully
Loomis
Molson
Oroville
Chesaw
Bonaparte
Wauconda
Riverside
Tonasket
Okanogan
Omak
Conconully
Loomis
Molson
Oroville
Chesaw
Bonaparte
Wauconda
Riverside
GYPSUM
SALT
IRON
BITUMINOUS SAND
NAT GAS
COAL
PYRITE
GOLD
SILVER
COPPER
ZINC
TALC
OIL SHALE
AMBER
SODIUM SULPHATE
MICA
NICKEL
MOLYBDENUM
TUNGSTEN
Prepared in the Natural Resources Intelligence Service
Department of the Interior.

Practically the only coal found to date in Manitoba and Saskatchewan is lignite, most of which occurs in the latter province. Saskatchewan's chief output comes from the Estevan district, in the southeastern corner of the province. Lignite deposits are also found at various points along the Souris river, in the Willowbunch-Wood Mountain district, on the South Saskatchewan, about 100 miles southeast of Saskatoon, and at numerous other localities in the province. Briquetting experiments have been conducted at Bienfait, which, it is hoped, will result in greater utilization of these extensive lignite deposits.

In addition to the reported output, numerous small mines and open cuts are operated for domestic consumption in all three provinces. A small tonnage of lignite is obtained in this way from the Turtle Mountain district, the only coal-producing area in Manitoba.

Copper

Large copper deposits are found in northern Manitoba in the Athapapuskow lake region. The Mandy property has already shipped 26,000 tons of high grade ore to the Trail smelter in British Columbia, and has an estimated reserve of 180,000 tons of 6 per cent copper ore. The Flin Flon claims have been shown by extensive diamond drilling to contain in the neighbourhood of 16,000,000 tons of low-grade copper-zinc-sulphide ore. The proper development of these ores will require, in addition to the usual mining machinery and equipment, a power development scheme, a smelter, and the construction of a railway to link up the area with The Pas. Copper claims have also been staked at lac la Ronge and Beaver lake in northern Saskatchewan.

Clays

Clays and shales suitable for the manufacture of brick and clay products are quite general, being found at various points in all three provinces. Southern Saskatchewan is fortunate in also possessing the more valuable fire and earthenware clays in abundance. The earthenware clay, which is white, approaches the English ball clay when washed, and is found with fire-clays at such points as Eastend, Readlyn and Willows; fire-clay also occurs at Claybank. A large deposit of kaolin exists near Lake Wapawekka in northern Saskatchewan. In the Readlyn-Willows district are found clays of the stoneware type, as well as semi-refractories suitable for the manufacture of sewer pipe, terra cotta, enamel ware, etc. The peculiar colloidal clay, bentonite, occurs at St. Victor and Knollys, Saskatchewan, and at Drumheller and other places in the Red Deer valley and south of Medicine Hat, Alberta. Saskatchewan possesses valuable resources in the number and variety of its clay deposits, not only in those mentioned but also in numerous other strata spread over a wide area. The total value of the clay products in the Prairie Provinces in 1923 was $882,818.

Gold

Although the actual production of gold in the Prairie Provinces is very small, prospects for an increased yield are excellent. Small amounts of placer gold are recovered from some of the streams in the Peace River district in Alberta, and gold has been reported near Amisk and la Ronge lakes in Saskatchewan, but the most promising gold fields exist in northern and southeastern Manitoba. The copper ores of the Athapapuskow lake region and some claims in the Herb (Wekusko) lake area have already yielded gold in paying quantities, and development work is in progress at Elbow, Copper, and Little Herb lakes in northern Manitoba. In the Rice lake, Beaver river, and Long lake districts of eastern Manitoba much activity is reported, and in some cases stamp mills have already been installed. Gold claims have also been staked at such places as Wintering, Pipestone, Oxford, Gods and Island lakes in Manitoba.

Gypsum

The only gypsum deposit of present commercial importance is found in Manitoba, northwest of lake Manitoba, at Gypsumville, where 34,000 tons were mined during 1923. The beds here are very extensive, over twenty square miles of country underlaid with gypsum being held by the operating companies, thus ensuring a plentiful supply for many years to come.

Gypsum is also widely distributed throughout the northern plains of Alberta, large outcrops occurring on the Peace river near Peace Point and near the brine springs on Salt river.

Natural Gas

Alberta's yield of natural gas, amounting to 6,135,260 thousand cubic feet in 1923, is exceeded only by that of Ontario in provincial production. This practically constitutes the output for the Prairie Provinces, as Saskatchewan produces none and Manitoba a very limited quantity.

The principal producing gas fields in Alberta are the Medicine Hat field, supplying Medicine Hat and Redcliffe; the Bow Island field about 40 miles west of Medicine Hat, the new Foremost field, 40 miles south of Bow Island and the Okotoks field 40 miles southwest of Calgary, together supplying Lethbridge, McLeod, Calgary and many other towns in Southern Alberta; and the Viking field, situated 80 miles southeast of Edmonton, which furnishes gas for Edmonton and towns along the pipe line. There are several wells producing gas at other points in the province particularly in Northern Alberta along the banks of the Peace and the Athabaska Rivers.

The only "wet" gas so far found is that in the Okotoks field. A small gasoline extraction plant has been established there for some years. The manufacture of carbon black may be commenced in certain restricted areas in the near future.

Petroleum

Alberta is one of the three oil-producing provinces of Canada, the output in 1923 amounting to 4,525 barrels, valued at $30,800. This production is obtained entirely from the Okotoks field in the Turner valley, southwest of Calgary.

There has been considerable drilling in various parts of Alberta, but with the exception of the wells at Okotoks, and the numerous strikes of natural gas, little success has attended these efforts. It is thought, however, that oil in large quantities exists, and many promising fields, such as the Peace river, Ranfurly, Monitor, Wainwright (including Fabyan and Irma), Medicine Hat, Pakowki, Coutts and Calgary districts, are being drilled. In the Wainwright district a well drilled to a depth of over 2,000 feet has produced oil in promising quantity. The developments in the Sweet Grass district in Montana, close to the international boundary, where several producing wells have been brought in, have aroused much interest in the adjoining territory in Alberta.

No oil or natural gas has been discovered in Saskatchewan to date. Some prospecting for oil is going on in the Pasquia Hills area and in the Rush Lake district, near Swift Current.

In Manitoba the search for oil is confined to the Turnberry, Mafeking, Winnipegosis, Dauphin, Stony Mountain and Stonewall districts.

Salt

Salt is widely distributed throughout the northern part of Alberta, the most notable occurrence being a saline spring near Fort Smith, which has supplied local demands for some years. Extensive beds of salt have also been discovered in the course of drilling operations near McMurray by the Provincial Government of Alberta and arrangements have been made by private interests to develop these beds.

In Saskatchewan small amounts are produced annually from a deposit near Senlac.

Several years ago salt was produced in Manitoba from brine springs occurring in the Dawson Bay area, west and south of Lake Winnipegosis and near Mafeking.

Sodium Sulphate

Enormous deposits of sodium sulphate have been found in the alkali lake area of Saskatchewan, notably near Ceylon and at Muskaki lake, near Dana. Twelve of these lakes alone are estimated to contain 50,000,000 tons of crystals and one single lake contains more than 25,000,000 tons. The sales of sodium sulphate during 1923 amounted to 523 tons, valued at $9,139.

Volcanic Ash

Volcanic ash has been found in thick beds at several localities in Saskatchewan. A deposit has been worked at Waldeck by a Swift Current firm, the material being utilized in scouring compounds and cleansers.

Other Minerals

Silver is present in the copper ores of the Mandy and Flin Flon groups, and silver-lead ore has been discovered at Little Herb lake in Manitoba.

In Alberta a deposit of limonite occurs on the Upper Peace river, toward the head of Halfway river, and promising deposits of sodium sulphate have been investigated near Minburn and Wainwright.

In Saskatchewan near Pipestone (Wapawekka) lake, some 50 miles east of lac la Ronge, occur deposits of soapstone and of a glass sand with a silica content of 98·6 per cent. Some hematite ore is found in the vicinity of Black bay, on lake Athabaska. Oil shales occur in the Pasquia hills.

A deposit of mica is reported in Manitoba about 15 miles east of lac du Bonnet, near the nickel-copper claims two miles east of Oiseau lake. An occurrence of tungsten-molybdenum ore is reported in the Falcon Lake district, and silica is found north of Swan river and near Black island, while pure quartzite has been observed 125 miles northwest of Winnipeg. Large areas of shales carrying small quantities of oil are found along the escarpment of the Pembina, Riding, Duck and Porcupine mountains.

Synopsis of Regulations Governing the Granting of Mineral Rights

Alkali Mining.—Dominion lands containing Natural accumulations of soluble mineral salts and associated marls may be leased by the Minister at an annual rental of twenty-five cents an acre. The term of the lease shall be twenty years, renewable for a further term of twenty years. Not more than 1,920 acres shall be leased to one applicant. A fee of ten dollars and the rental for the first year shall accompany each application for a lease. A royalty of twelve and one-half cents per ton on solid products and two cents per gallon on salts in solution shall be charged, with certain reservations, on all raw or refined products shipped.

Coal.—Coal mining rights may be leased for a period of twenty-one years, renewable for a further period of twenty-one years, at an anual rental of one dollar an acre. Not more than 2,560 acres shall be leased to one applicant. A royalty at the rate of five cents per ton shall be collected on the merchantable coal mined. A fee of five dollars shall accompany each application for a lease.

Limestone, Granite, Slate, Marble, Gypsum, Marl, Gravel, Sand, Clay, or any Building Stone.—Dominion lands containing these materials may be leased by the Minister at an annual rental of one dollar per acre for the purpose of quarrying out and removing therefrom stone or other material mentioned herein.

The term of the lease shall be twenty-one years, renewable for a further period of twenty-one years. The maximum area of the quarrying location shall be forty acres, and no person shall be allowed to lease more than one location. A fee of five dollars shall accompany each application for a lease.

Clay locations are leased upon the condition that a plant suitable for the manufacture of brick or other clay products shall be erected within two years from the date of the lease.

Petroleum and Natural Gas.—The petroleum and natural gas rights, which are the property of the Crown, may be leased to applicants at a rental of fifty cents per acre for the first year, and for each subsequent year at the rate of one dollar an acre. The term of lease shall be twenty-one years, renewable for a further term of twenty-one years. The maximum area of a location shall be 1,920 acres. Expenditure incurred in boring operations, exclusive of the cost of machinery and casing, may be accepted in lieu of rental.

Application for a lease may be made by the applicant in person to the Agent of Dominion Lands for the district in which the rights applied for are situated, or to a sub-agent for such district for transmission to the agent. In case the location is in unsurveyed territory it shall be staked out by the applicant in person. A fee of five dollars and the rental for the first year shall accompany each application for a lease.

Placer Mining.—Any person over eighteen years of age may enter for mining purposes, locate, prospect and mine for minerals upon any lands the right to which entry, prospecting and mining is vested and reserved to the Crown with certain exceptions.

An application for a grant of a claim shall be filed with the mining recorder within ten days after the location thereof, if the claim is located within ten miles of the mining recorder's office. One extra day shall be allotted for every additional ten miles, or fraction thereof. The fee for recording a claim is ten dollars.

Quartz Mining.—Any person, 18 years of age or over, may locate a claim 1,500 by 1,500 feet by marking out the same with two legal posts, one at each end of the location line. The two location posts must have the name of the claim, a description of the ground, date of location, and locator's full name written legibly upon them.

The claim shall be recorded within fifteen days if located within ten miles of a mining recorder's office; one additional day is allowed for every additional ten miles or fraction thereof. The fee for recording a claim is ten dollars.

At least one hundred dollars must be expended on the claim each year or paid to the Mining Recorder in lieu thereof. When at least five hundred dollars have been expended or paid, the locator may, upon having a survey made, and upon complying with other requirements, lease the mineral rights.

There are also regulations governing the issue of leases to dredge for minerals in the beds of the rivers; the leasing of deposits of potash on Dominion lands; the granting of permits to remove sand, stone and gravel from beds of rivers and lakes; and regulations relating to bar diggings on the North Saskatchewan river.

NOTES.—(1) All rentals must be paid yearly in advance. Fees accompanying an application for a lease will be returned only if the rights applied for are not available.

(2) For information regarding the various regulations covered in the above synopses write the Mining Lands Branch, Department of the Interior, Ottawa.

MINERAL PRODUCTION OF ALBERTA, SASKATCHEWAN AND MANITOBA FOR 1923

—		Alberta		Saskatchewan		Manitoba	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
Clay: fireclay	tons	6,372	24,213	324	2,729	.....	.....
Fireclay, blocks and shape	$	.....	3,610	.....	1,180	.....	.....
Bricks, common	No.	8,023,000	89,029	2,261,475	26,398	8,960,610	142,891
" pressed	"	8,925,231	109,066	1,091,000	33,291	300	5
" tapestry and rug	"	554,350	11,093	133,000	4,988	.....	.....
" fire-brick	"	65,225	1,630	450,000	17,985	.....	.....
Building tile: interlocking	tons	2,455	20,000	1,000	18,000	.....	.....
" other hollow building blocks	"	4,489	50,555	1,205	3,684	1,100	15,478
Drain tile	No.	102,650	5,414	65,000	4,550	30,360	1,760
Pottery	$	.....	125,000	.....	.....	.....	.....
Sewer pipe	tons	6,035	175,168	.....	.....	.....	.....
Cement	bbls.	381,756	740,940	.....	.....	320,218	817,664
Coal	tons	6,854,397	28,018,303	438,100	858,448	.....	.....
Gold	oz.	.....	.....	.....	.....	31	641
Lime: quicklime	bus.	96,905	37,653	.....	.....	471,828	141,426
" hydrated lime	tons	33	346	.....	.....	.....	.....
Natural gas	M. cu. ft	7,191,670	1,692,240	.....	.....	200	60
Petroleum	bbls.	1,943	8,227*	.....	.....	.....	.....
Sand and gravel	Yds.	657,938	199,256	324,681	59,541	441,148	123,478
Sodium sulphate	tons	.....	.....	733	10,189	.....	.....
Silver	Fine oz.	.....	.....	.....	.....	5	3
Stone	tons	.....	.....	.....	.....	51,304	118,277
Gypsum	tons	.....	.....	.....	.....	31,575	386,554
Total value		.....	$31,311,749	.....	$1,040,983	.....	$1,748,237

*Includes bounty $101.

FORESTS

Though it may seem like a paradox to refer to the forests of the Prairie Provinces, the wooded sections in each province are nevertheless very extensive, actually covering in the case of Manitoba almost 70 per cent of the total area of the province.

Recent estimates of the commercial timber stands of the three provinces range from eight to eleven million acres and the commercial saw timber from thirty-three to forty-two thousand million board feet. This estimate neglects much of the northern area, with its more or less scattered scrubby growth, an area, however, which must not be under-estimated in value, for it is both a potential source of small timber and pulpwood for the future, and a cover for game and fur-bearing animals.

The principal merchantable species include spruce, poplar, jack-pine, tamarack, birch and balsam, while other species, such as lodge-pole pine, willow, cottonwood, ash, elm, maple, and oak also are found in varying numbers. Domestic consumption accounts for nearly all the production of the lumber mills, which are located at central points throughout the timber regions in all three provinces. In 1921 there were 36 sawmills operating in Alberta, 16 in Saskatchewan and 27 in Manitoba.

Forest Reserves

Forest reserves are maintained in the Prairie Provinces to the extent of 18,894 square miles in Alberta, 9,303 in Saskatchewan and 3,729 in Manitoba. These reserves are still being added to and changed as careful surveys demonstrate the need. The policy of the Forestry Branch of the Department of the Interior has been to include in the forest reserves areas unfit for agriculture, but capable of being developed from waste areas to productive ones by reforestation methods, and to release land which is better suited for agriculture than tree growing. The reserves have been established, not with the idea of keeping the timber and other resources within them from use, but to supply, for all time, the largest quantity of the best timber that can be produced. Certain amounts of fuel and building logs are given the nearby settlers, and permits are granted, on payment of a nominal fee, to cut timber for domestic, community and various other uses. Stands of fire-killed or over-mature timber are also sold to expedite the reforestation of the area concerned. The open spaces are leased to the settlers for grazing purposes, and the utilization of the reserves for camping, fishing and recreation is encouraged.

The Forestry Branch maintains fire patrols in the reserves and on the timbered areas outside them; much good work is being done by the fire rangers in educating the campers, hunters and trappers to exercise care with their campfires, and in forcing timber cutters to clear up their slash. Every effort is being made to reduce the forest fires, which every year take such toll of valuable timber; lookout towers are located at various points to assist the rangers in the early location of fires, and aeroplane patrols have recently been established which have proved of great value not only in combating forest fires but in various timber surveys and photographic work.

Tree Planting Service

The tree planting division of the Dominion Forestry Branch, with headquarters and chief nursery at Indian Head, Saskatchewan, and a subsidiary nursery at Sutherland, near Saskatoon, is doing splendid service in fostering

prairie tree planting. Expert advice as well as tree seed, seedlings and transplants are supplied, with the result that many ranches have been beautified, much soil drifting prevented, valuable wind breaks established to protect both crops and live stock, and work of reforesting the forest reserves advanced.

It is probable that domestic markets will continue largely to absorb the products of the lumber mills of the Prairie Provinces, but on the other hand the vast supplies of pulpwood will doubtless be utilized in the near future to swell the total of Canadian exports of pulp and paper.

Timber lands in the Prairie Provinces are administered as follows: The forest reserves are controlled by the Forestry Branch, Department of the Interior; the timber on Dominion lands, excepting that located in parks and forest reserves but including timber limits leased before the reserves were established, are administered by the Timber and Grazing Lands Branch, Department of the Interior, while forests in Dominion parks are administered by the Canadian National Parks Branch, Department of the Interior.

Alberta

Alberta's timber wealth is found chiefly in the mountain and foothill country of the southwest, the broken headwater country of the Alberta rivers, and the northern half of the province.

The principal timber-producing areas now available are found in the Rocky Mountains reserve. The northern regions are wooded, some good timber being found bordering the lakes, but due to transportation difficulties most of it is at present inaccessible; some lumber, however, is cut for local needs in the Peace River district.

Spruce provides the greater proportion of the annual cut, to which smaller amounts of lodgepole pine, jack pine, balsam fir, poplar, tamarack and white birch contribute.

There are four forest reserves in Alberta, comprising an area of 18,894 square miles; Rocky Mountains, 13,730; Lesser Slave, 5,023; Cypress Hills No. 1, 81; and Cooking Lake, 60. The Rocky Mountains reserve is divided, for administrative purposes, into five units, namely, Crowsnest, Bow River, Brazeau, Clearwater, and Athabaska.

As in the other provinces, forest fires have wreaked terrible havoc among Alberta's forests, destroying much valuable timber. However, with improved methods of fire control, including the use of aeroplanes, and wise administration, the forests of Alberta will realize a large annual revenue.

Saskatchewan

About one-third of the province consists of wooded areas, only a small proportion of which contain commercial timber. This timber is largely contained in a belt stretching across the central part of the province, bounded on the north by the Churchill river and extending southerly to Prince Albert, on the Saskatchewan river. From Prince Albert it extends southeast, reaching below the river to the eastern boundary of the province, while the western section barely reaches the Saskatchewan. The northern part of the province is also wooded, but with the exception of some good timber in the valley of the Clearwater river and near the shores of lake Athabaska the forest growth is small and inferior. Estimates of the size of the merchantable timber stands range all the way from one to three million acres.

Saskatchewan ranks second in the lumber production of the Prairie Provinces, the centre of the industry being at Prince Albert. The cut is composed largely of spruce, the remainder being tamarack, poplar and jack pine. Other varieties found in Saskatchewan are balsam and white birch. Large reserves of pulpwood are available in this province, which are not being utilized at present.

There are seventeen reserves in the province with a total area of 9,303 square miles, distributed as follows: areas in each case being in square miles: Porcupine No. 2, 2,870; Pasquia, 2,615; Big River, 1,342; Sturgeon, 729; Fort a la Corne, 513; Manito, 180; Pines, 165; Moose Mountain, 156; Nisbet, 149; Elbow, 119; Beaver Hills, 99; Cypress Hills No. 2, 98; Keppel, 86; Duck Mountain No. 2, 81; Dundurn, 63; Seward, 31; and Steep Creek, 7.

Manitoba

Of Manitoba's total area nearly three-quarters is wooded, the only parts of the province not bearing extensive forest growth being the southern prairie section and the extreme northern parts. Even in the southern districts are found some scattered clumps of trees and two forest reserves offer promise of more abundant timber for this section. North of the prairies the forests are general, the best timber being found in the river valleys, on the islands, high plateaus and hilly regions, and around the shores of the lakes. The timber in the area tapped by the Hudson Bay railway is scattered and has been terribly depleted by the ravages of forest fires. In fact, nearly all the forests of Manitoba have suffered from this scourge, but in most places a second growth is flourishing. From The Pas, north, very little saw timber is found, although large quantities of mine timbers, ties and pulpwood are available. The extreme northern section supports a sparse stunted growth suitable for firewood.

Manitoba possesses large pulpwood resources, several areas presenting favourable conditions, including abundance of water-power for the manufacture of pulp and paper. Among these may be mentioned the district between lac du Bonnet and Black river, the one in the vicinity of Grand Rapids on the Saskatchewan river, and the section along the line of the Hudson Bay railway from The Pas to Wintering lake. These areas will doubtless be called on to supply their share of Canada's pulp production in the future.

The forest flora of this province is varied. In the southern sections oak, ash, poplar, elm, basswood, and maple are found, while in the more northerly regions spruce, jack pine, tamarack, balsam, birch, and poplar predominate.

Manitoba has first place in the lumber production of the Prairie Provinces, her output consisting of spruce, jack pine, poplar, birch, tamarack, and balsam. Some of this production, however, should be credited to Saskatchewan, as much of the timber cut at The Pas is obtained from the Carrot river valley in Saskatchewan.

Manitoba's five forest reserves cover an area of approximately 3,729 square miles. They are enumerated as follows, all areas being given in square miles: Duck Mountain, 1,462; Riding Mountain, 1,159; Porcupine No. 1, 775; Spruce Woods, 224; Turtle Mountain, 109.

ESTIMATED TOTAL FOREST RESOURCES OF THE PRAIRIE PROVINCES

(All figures in millions of feet, B.M.)

	Saw material			Small material			Totals		
	Soft-wood	Poplar and birch	Total	Soft-wood	Poplar and birch	Total	Soft-wood	Poplar and birch	All species
Manitoba	3,450	3,000	6,450	23,550	14,500	38,050	27,000	17,500	44,500
Saskatchewan	3,950	4,000	7,950	52,350	22,500	74,850	56,300	26,500	82,800
Alberta	11,200	7,000	18,200	47,300	34,500	81,800	58,500	41,500	100,000
Total, Prairie Provinces	18,600	14,000	32,600	123,200	71,500	194,700	141,800	85,500	227,300

OUTPUT OF FOREST PRODUCTS IN THE PRAIRIE PROVINCES FOR YEAR 1922

CLASSES OF MATERIALS, QUANTITIES AND VALUES

Items		Manitoba		Saskatchewan		Alberta	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
Lumber	M. B. feet	54,930	1,371,062	9,609	283,922	25,618	649,791
Lath	M. pcs.	15,585	102,023	3,774	18,815	5,378	33,254
Shingles	"	.....	.....	.....	.....	125	312
Pulpwood	cords	16	72	.....	.....	.....	.....
Firewood	"	416,460	1,682,063	434,181	1,720,292	363,295	1,146,861
Cross ties	pcs.	45,120	43,613	24,749	23,789	417,816	307,932
Poles	"	699	2,390	524	1,878	37,180	100,394
Posts	"	833,159	95,911	2,602,242	191,697	2,094,256	140,439
Rails	"	69,113	5,994	51,902	4,561	375,365	26,728
Round mining timber, B.M.	M. ft.	.....	.....	141	3,442	12,969	404,441
Miscellaneous products	cords	3,041	13,684	1,417	6,375	13,221	61,496
Total		.....	3,316,812	.....	2,254,771	.....	2,871,648

SYNOPSIS OF REGULATIONS GOVERNING THE GRANTING OF TIMBER BERTHS ON DOMINION LANDS IN THE PRAIRIE PROVINCES

Timber berths shall be disposed of by public auction at the office of the Dominion Timber Agent for the district in which the berths are situated.

Before any parcel of timber is offered for sale it shall be surveyed by a duly qualified Dominion land surveyor into berths of an area not exceeding twenty-five square miles.

No berth shall be disposed of until notice of the sale has been given for a period of not less than thirty days in a newspaper published in the district in which the berth is located and also in a newspaper having a general circulation in the province.

Purchases shall be paid part in cash and balance covered by notes bearing interest at rate of 6 per cent per annum.

The licensee shall be entitled to a renewal of his license from year to year subject to the regulations in force at the time renewal is made, while there is on the berth a sufficient quantity of merchantable timber as described in the license, and provided the terms and conditions of the license, and the provisions of the Dominion Lands Act, and regulations have been fulfilled.

The licensee shall pay an annual ground rent of ten dollars per square mile, and one-half of the cost of fire protection for his berth.

Timber for Homesteaders.—Any occupant of a homestead quarter-section having no suitable timber of his own and who had not obtained a free allowance of timber from Dominion lands may, providing application is made within five years of date of his homestead entry, obtain a free permit to cut a stated quantity of building and fencing timber such as he may require for use on the land he owns and occupies. If he requires a further quantity for the purpose mentioned he must pay the specified dues.

Settlers residing on farm lands not containing timber, or who are not the owners of timbered lands, may obtain free permits to cut fuel from dead or fire-killed timber for their own use, the quantity not to exceed fifteen cords in a permit year.

Permit berths are granted covering one square mile under certain conditions contained in section 41 of the Timber Regulations.

For more detailed information regarding the granting of the right to cut timber on Dominion lands write to the Controller of the Timber and Grazing Lands Branch, Department of the Interior, Ottawa, or to the local Crown Timber Agent.

Synopsis of Regulations Governing the Granting of Pulpwood Berths on Dominion Lands

Pulpwood berths shall be disposed of by tender after having been advertised for not less than ninety days in at least two newspapers having a general circulation in the province in which the berth is located.

The minister shall decide the area of the berth and whether a survey of the boundaries may be necessary.

The tenderers shall be asked to state the amount per cord on pulpwood they are prepared to pay as a bonus in addition to dues at 60 cents per cord.

The tenderer shall be required to deposit with his tender a marked cheque drawn on a chartered bank of Canada payable to the Deputy Minister of the Interior, for a certain amount which shall be forfeited in the event of his not entering into agreement to carry out the conditions attached.

The licensee shall pay an annual rental at the rate of $1 per square mile, due in advance on the 1st May. The licensee shall also pay one-half the cost of fire-protecting his berth.

For further detailed information regarding the granting of the right to cut pulpwood on Dominion lands write to the Controller of the Timber and Grazing Lands Branch, Department of the Interior, Ottawa, or to the local Crown Timber Agent.

PARKS

The Canadian National parks cover an area of nearly 10,000 square miles of the finest scenery on the continent, of which more than 7,500 square miles are located in the Prairie Provinces. This great area, which was primarily set aside for the benefit and enjoyment of the people of Canada, has developed into one of the great revenue-producing resources of the country.

The growing popularity of the parks, both to Canadian and foreign tourists, is clearly shown in the increasing number of visitors to these mountain areas each year. During the fiscal year ending March 31, 1923, over 195,000 tourists visited the parks and of these 65,000 were from foreign countries. On the basis of an estimated expenditure of $300 each by visitors coming into the country, tourist traffic to the parks from foreign countries represented a revenue of $19,500,000, while approximately $17,700,000 was kept in the country by attracting Canadians to their own parks.

Sanctuary conditions in the parks have brought about a wonderful increase in wild life in these and adjoining areas. Bear, sheep, goat, moose, beaver, deer, and many other animals, together with a variety of birds, may be seen from the motor roads and trails throughout the parks.

The administration of the Migratory Birds Convention Act also comes under the Commissioner of Canadian National Parks. Certain areas of marsh lands and lake and river shore are set aside as breeding grounds for migratory birds, in which they are protected the year round. Twenty-four sanctuaries have already been reserved in the west and many other areas are under consideration.

The following areas are administered by the Canadian National Parks Branch in the Prairie Provinces:—

SCENIC PARKS AND RESERVES

Name of park	Location	Areas
Banff National	Alberta, east slope of Rockies	2,751 sq. miles.
Jasper	Northern Alberta	4,400 "
Waterton Lakes	Southern Alberta adjoining United States Glacier Park	220 "
Vidal's Point	Saskatchewan	17 acres.
Little Manitou Lake (Recreation area)	Saskatchewan	Vacant lands around lake.
Brereton Lake (Recreation area)	Manitoba	" "
Falcon Lake (Recreation area)	Manitoba	" "
Nora Lake (Recreation area)	Manitoba	" "
West Hawk Lake (Recreation area)	Manitoba	" "
Fort Pelly (Recreation area)	Saskatchewan	800 acres.

ANIMAL PARKS

Buffalo park	Near Wainwright, Alta	161·5 sq. miles.
Elk Island park	Near Lamont, Alta	51 "
Nemiskam antelope reserve	Southern Alberta	8·5 "
Wawaskesy antelope park	Alberta	54 "
Menissawok antelope park	Saskatchewan	17 "

HISTORIC SITES

Fort Prince of Wales	Churchill, Manitoba.
Battlefield of Fish Creek	Batoche, Saskatchewan.
Frog Lake Massacre	Near Lloydminster, Sask.
Fort Livingstone	Pelly, Saskatchewan.
Battle of Seven Oaks	Winnipeg, Manitoba.

BIRD SANCTUARIES

(a) Permanently reserved

	Sq. miles
Many Islands lake, Alberta	21·0
Buffalo lake, Alberta	25·0
Ministik lake, Alberta	51·0
Miquelon lake, Alberta	11·0
Lac la Biche, Alberta	92·0
Pakowki lake, Alberta	45·0
Birch lake, Alberta	15·0
Last Mountain lake, Saskatchewan	92·0
Indian Head, Sutherland, Saskatchewan	1·25
Rideau Island, Alberta	0·008
Red Deer, Alberta	0·5

(b) Temporarily reserved

Quill lake, Saskatchewan	250
Johnston lake, Saskatchewan	126
Cabri lake, Saskatchewan	4
Lenore lake, Saskatchewan	38
Big Stick lake, Saskatchewan	20
Crane lake, Saskatchewan	23
Chaplin lake, Saskatchewan	73
White Bear lake, Saskatchewan	3
Redberry lake, Saskatchewan	31
Manito lake, Saskatchewan	56

GAME LAWS 1924

OPEN SEASON ☐ CLOSED SEASON ▩

MANITOBA

Bag Limit—Deer etc. one male adult only. Brant, 15 a day. Wilson or Jack Snipe, 25 a day. Geese 10 a day, Ducks 20 a day before Oct. 1st, 40 a day thereafter, 200 for the season. Prairie Chicken and Pinnated Grouse, season 35. Partridge season 25	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Moose, Deer, Reindeer or Caribou.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Otter or Beaver south of 53rd parallel.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Otter and Beaver north of 53rd parallel.	☐	☐	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Fisher or Pekan, Sable, Marten, or Mink.	☐	☐	☐	▩	▩	▩	▩	▩	▩	▩	☐	☐
Prairie Chicken, Pinnated Grouse, Partridge.	▩	▩	▩	▩	▩	▩	▩	▩	▩	☐	▩	▩
Fox or Lynx (north of 53rd parallel.)	☐	☐	☐	▩	▩	▩	▩	▩	▩	▩	☐	☐
Muskrat (north of 53rd parallel.)	▩	▩	☐	☐	☐	▩	▩	▩	▩	▩	▩	▩
Muskrat (south of 53rd parallel.)	▩	▩	☐	☐	▩	▩	▩	▩	▩	▩	▩	▩
Bison or Buffalo, Female or Fawns of Deer under one year of age, Elk or Wapiti. Cabri or Antelope.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Swan, Mourning Dove, Wild Pigeon, Band Tailed Pigeon, Little Brown Crane, Sandhill Crane, Whooping Crane, Quail or Curlew, Black Breasted or Golden Plover, Woodcock, Yellowlegs, Wood Duck, Eider Duck, Sandpiper, Pheasant and Hungarian Partridge.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Brant, Wild Geese, Scooter or Wild Duck, Wilson or Jack Snipe.	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐	☐	▩
Wild Ducks north of 53rd parallel	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐	☐	▩

SASKATCHEWAN

Bag Limit— Big Game: 1 Moose, 2 Deer, 2 Caribou, males only, except Caribou but not more than two animals in all. Prairie Chicken (Partridge) 10 a day, 30 for the season. Ducks and Geese 30 a day, total 200 for the season. Penalty for violation of the law, $10.00 to $500.00 or Imprisonment.	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Buffalo, Antelope, Elk, Female Deer, Fawns, Big Game animals (south of township 35)	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Deer, Caribou, Moose, (north of township 34).	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐
Ducks, Geese, Rails, Coots, Black Breasted or Golden Plover, Wilson or Jack Snipe and Greater and Lesser Yellow-legs.	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐	☐	☐
Prairie Chicken (Sharp-tailed Grouse, and Pinnated Grouse), Ruffed Grouse (Partridge) and Canada or Spruce Grouse.	▩	▩	▩	▩	▩	▩	▩	▩	▩	☐	▩	▩
European Grey or Hungarian Partridge, Sage Grouse, Cranes, Swans, Pelicans, Loons, Bitterns, Gulls, Terns and other Insectivorous Birds.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Mink, Fisher, Marten, Fox, Lynx	☐	☐	☐	▩	▩	▩	▩	▩	▩	▩	☐	☐
Otter.	☐	☐	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Muskrat (south of Township 53)	▩	▩	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Muskrat (north of Township 52	▩	▩	☐	☐	☐	▩	▩	▩	▩	▩	▩	▩
Beaver (north of Township 52	☐	☐	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Beaver (south of Township 53)	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩

ALBERTA

Hunting or trapping over enclosed lands prohibited without having obtained the consent of the owner or occupant thereof. The killing of animals under one year of age is prohibited.	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Mountain Sheep 1 male only Mountain Goat 1 only	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Buffalo, Elk, Wapiti, Antelope.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Deer, Moose, 1 male only Caribou 1 only	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐
Ducks and Geese. Bag limit, Ducks, 30 per day, 200 the season; Geese, 15 per day; Brant, 15 per day.	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐	☐	☐
Swans, Cranes.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
*Rails, Coots, 25 per day. Black Bellied Plover, Golden Plover, Yellow Legs, 15 per day; Wilson Snipe, 25 per day.	▩	▩	▩	▩	▩	▩	▩	▩	☐	☐	☐	☐
Grouse, (Prairie Chicken, Partridge, etc.) 10 per day, 50 the season.	▩	▩	▩	▩	▩	▩	▩	▩	▩	☐	▩	▩
Hungarian Partridge. South Battle River, 15 per day, 75 the season. North Battle River.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Hungarian Pheasant.	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Crows, Eagles, Goshawks, Pigeon Hawks, Duck Hawks, Cooper's Hawks, Hawk-Owls, Blackbirds, Grackels, English Sparrows, Loons, Cormorants, Pelicans and Magpies	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Mink, Fisher, Marten Fox	☐	☐	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Otter.	☐	☐	☐	☐	☐	▩	▩	▩	▩	▩	☐	☐
Beaver	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩
Muskrat, (north N. Sask. River).	☐	☐	☐	☐	▩	▩	▩	▩	▩	▩	☐	☐
Muskrat, (south N. Sask. River).	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩	▩

Birds not mentioned above must not be killed or taken.

FURS AND GAME

In their immense areas of country, with its varied topography, the Prairie Provinces have rich resources in fur-bearers and game. The appreciation of fur in the world of fashion and commerce and the desire of thousands of people under the strain of modern business to mingle with nature in the pleasures of fishing and hunting, give to wide stretches of country that are the natural haunts of wild life not only a commercial value but also a value that dollars can never convey. The total value of pelts taken in Canada during the season 1922-23 was $16,761,567, to which Manitoba, Saskatchewan, and Alberta contributed $1,673,667, $2,242,937 and $1,822,634, respectively. The fur-bearers contributing for the most part to these figures were in order of value, muskrat, beaver, mink, marten, coyote and fox (red, cross, white, black and silver).

Through legislation and the co-operation of the federal and provincial governments and various private organizations in the protection of all kinds of birds and fur-bearing animals, benefits have resulted not only to the community as a whole but also to individual trappers, traders, and hunters, and it is confidently hoped that under wisely applied methods of conservation the fur and game wealth of the Prairie Provinces will be permanently maintained and increased. In recent years the status of Western Canada's commerce in fur has improved as a result of the regular auction sales that now attract buyers from many countries.

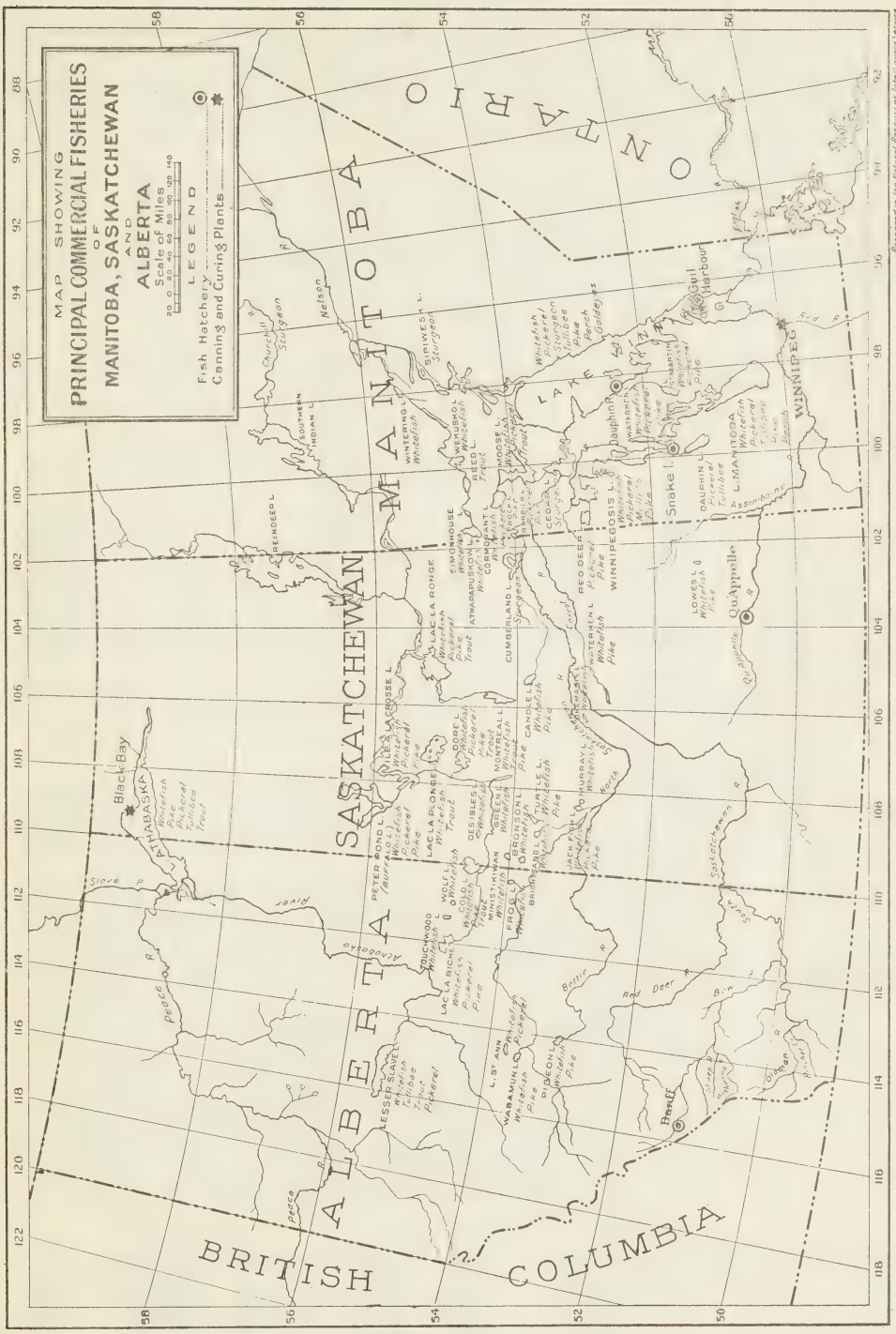
Revenue

The following table gives the revenue obtained by the provincial governments from the issuing of licenses to sportsmen and farmers for hunting big game and birds, together with the revenue derived from fees and taxes on those engaged in the commerce in furs:—

Province	1919	1920	1921	1922	1923
Manitoba	$39,608	$83,733	$74,549	.....	$93,046
Saskatchewan	24,136	27,820	35,300	$112,218	138,478
Alberta	40,185	47,832	79,156	86,997	96,033

Fur Farms

In 1921 the Prairie Provinces contained twenty-five fur farms, which increased to eighty-two during 1922-23, distributed as follows: Manitoba, twenty-two; Saskatchewan, ten; and Alberta, fifty. The total value of these farms in 1923 was $1,189,439. The eighty-two fur farms include seventy fox farms, and twelve miscellaneous fur-bearing animal farms.


MAP SHOWING
PRINCIPAL COMMERCIAL FISHERIES
OF
MANITOBA, SASKATCHEWAN
AND
ALBERTA
Scale of Miles
LEGEND
Fish Hatchery
Canning and Curing Plants
SASKATCHEWAN
MANITOBA
ONTARIO
ALBERTA
BRITISH COLUMBIA
WINNIPEG
Prepared in the Natural Resources Intelligence Service
Department of the Interior

FISHERIES

In all the three Prairie Provinces, numerous lakes and rivers, covering nearly 31,000 square miles in area, abound in valuable food fishes. Whitefish, the most abundant species, is unexcelled in quality and is in great demand, while pickerel, tullibee, lake trout, pike, goldeyes and sturgeon, with its attendant product caviare, also find a ready market. Other varieties include perch, mullet, catfish and ling.

Commercial fishing is for the most part carried on in the winter season, when the chilled or frozen fish may be shipped to distant points. This winter catch is marketed in the Canadian interior and adjoining American states. A large demand has been created in Chicago and numerous other middle western cities, while occasional shipments have been made to such distant points as Montreal and New York. Some summer fishing also takes place, the catch being marketed in the nearby towns.

The fishing enterprises are well organized, with collecting stations and chilling plants at central points. Motor launches, teams and sleighs are used to convey the packed fish to the nearest railway station. A fishing fleet of steam tugs, gasoline launches, sail boats and skiffs is also maintained, the total outlay in boats, gear, icehouses, fishsheds and wharves being valued at more than three-quarters of a million dollars in 1923.

Considerable progress has been made in fish culture, with five hatcheries supplying eggs and fry. In Manitoba there are three, the one at Gull Harbour, lake Winnipeg, propagating whitefish and pickerel, those at Dauphin river and at Snake island, whitefish alone. The Saskatchewan hatchery, located at Qu'Appelle, also distributes whitefish, while that at Banff, Alberta, specializes in game fish, namely, Atlantic salmon, ouananiche, rainbow, cut-throat and salmon trout.

The future of the fishing industry in the Prairie Provinces depends largely on the more extensive exploitation of the large northern lakes and a more intensive system of re-stocking, which will allow a greater catch to be marketed annually without depletion.

Improved facilities for transportation in the north, such as the railway extensions to McMurray and Peace River in Alberta, to Big River in Saskatchewan, and the Hudson Bay railway in The Pas district, have materially assisted the development of the fishing industry.

In value of catch, in the amount of capital invested and in number of employees, the fisheries of the Prairie Provinces showed a considerable advance in 1923. The total value of the commercial fisheries in the three provinces in that year was $1,745,975, which represented an increase over the previous year of $260,583, or 17 per cent.

VALUE AND PERCENTAGES OF PRODUCTION OF FISHERIES IN MANITOBA, SASKATCHEWAN AND ALBERTA

Year	Manitoba		Saskatchewan		Alberta	
	Value	Per cent of total for Prairie Provinces	Value	Per cent of total for Prairie Provinces	Value	Per cent of total for Prairie Provinces
	$		$		$	
1915	742,925	74·07	165,888	16·54	94,134	9·39
1918	1,830,435	70·50	447,012	17·23	318,913	12·28
1920	1,249,607	60·23	296,472	14·28	529,078	25·49
1921	1,023,187	61·08	243,018	14·50	408,868	24·42
1922	908,816	61·19	245,337	16·51	331,239	22·30
1923	1,020,595	58·45	286,643	16·41	439,737	25·14

CAPITAL AND EMPLOYEES IN THE FISHERIES OF MANITOBA, SASKATCHEWAN AND ALBERTA

Province	1922		1923	
	Capital	Employees	Capital	Employees
	$	No.	$	No.
Manitoba	695,414	2,113	777,070	2,530
Saskatchewan	37,096	423	51,656	572
Alberta	134,523	615	145,601	595
Total	867,033	3,151	974,327	3,697

YIELD AND VALUE OF THE FISHERIES IN THE PROVINCES OF MANITOBA, SASKATCHEWAN AND ALBERTA DURING THE CALENDAR YEAR 1923

Kinds of fish	Manitoba		Saskatchewan		Alberta	
	Quantity	Value	Quantity	Value	Quantity	Value
	cwt.	$	cwt.	$	cwt.	$
Catfish	791	7,925	.....	.....	.....	.....
Goldeyes	3,747	43,761	20	240	.....	.....
Mixed fish	50	750	2,850	5,165	.....	.....
Mullets	6,266	10,408	2,476	13,503	7	21
Perch	2,175	11,122	60	420	60	640
Pickerel	68,096	494,982	1,943	15,944	3,476	20,639
Pike	24,103	89,734	3,753	24,307	2,859	13,680
Sturgeon	1,770	83,775	35	875	.....	.....
Caviar	1,870	4,255	.....	.....	.....	.....
Trout	286	2,145	1,753	16,999	2,406	22,636
Tullibee	18,952	98,279	267	1,926	1,412	6,661
Whitefish	25,491	183,459	24,607	207,264	41,649	374,460
Total	153,597	1,020,595	37,764	286,643	51,869	438,737

Manitoba

The southern portion of Manitoba, with its better transportation and larger proportion of the 20,000 square miles of the whole lake area, yields the great bulk of the provincial output.

The principal fishing areas, in order of their importance, are lakes Winnipeg, Winnipegosis, The Pas district, and lake Manitoba. Other fishing districts of less importance are lakes St. Martin, Waterhen, Dauphin and Red Deer, and Buffalo bay in the lake of the Woods.

The fishing industry of the northern lakes, with The Pas as shipping centre, is steadily becoming more valuable as transportation improves. Lakes Moose, Cormorant and Cumberland are also important producers and the Hudson Bay railway is bringing many more within range of the markets.

The largest single item in the fish production of Manitoba is pickerel, followed in order by whitefish, pike, tullibee, mullets, goldeyes and sturgeon. Whitefish, pickerel, tullibee and pike are in nearly all the important lakes, goldeyes chiefly in lakes Winnipeg and Winnipegosis. Sturgeon are caught in such northern lakes as Cumberland, Namew and Sipiwesk, but also in lake Winnipeg. The northern lakes are the main habitat of the trout.

Manitoba Fishing Licenses

The following are the different kinds of licenses issued in the province of Manitoba:—

Settler's Permit,
Commercial Sturgeon Fishery License,
Domestic Sturgeon Fishery License,
Special Angling Permit for Non-residents.

Under the special fishery licenses, all licenses for commercial fishing, with the exception of sturgeon, are issued on the one form, with fees varying according to kind and requirement, a separate license being required for catching each kind of fish.

Settler's Permit.—Any resident settler, including Indian, may secure a fishing permit to fish with not more than one hundred yards of gill-net, or with a dip-net or with not more than fifty baited hooks for domestic use, but not for sale or barter. Such permit shall be issued free.

Special Fishing License.—A commercial license for dip-net fishing shall authorize the use of one dip-net for the capture of suckers and other coarse fish not protected by a close season. The fee on such license shall be two dollars.

Commercial fishing is allowed in the larger lakes of Manitoba, and in most cases a limit is set on the amount of fish that may be taken during the summer or winter season, on the amount of fishing contrivance to be used, and on the time the various kinds of fish may be taken. The fees range from two to fifty dollars.

Commercial Sturgeon Fishery License.—A sturgeon fishing license for commercial fishing shall authorize the use of not more than five hundred yards of gill-net or five hundred baited hooks. The fee on such license shall be five dollars.

Domestic Sturgeon Fishery License.—A sturgeon fishing permit for domestic fishing shall authorize the use of not more than one hundred yards of gill-net or fifty baited hooks, and under this permit not more than three sturgeon may be taken in one week.

Catfish Fishery License.—A license to authorize the use of not more than five hundred baited hooks or five hundred yards of net for the summer capture of catfish may be issued for any of the waters of the province. The fee on such license shall be three dollars.

Special Angling Permit for Non-residents.—No one other than a British subject resident in the province, or a resident settler including Indians, may fish by angling without a permit, the annual fee of which shall be five dollars.

Saskatchewan

Saskatchewan contains about 8,500 square miles of lakes, mostly in the northern half of the province. The clear, cold waters of these northern lakes produce fish unexcelled in quality and flavour which command the highest prices in the markets of Canada and the United States.

The most prolific fisheries are those of the Doré, Montreal, and Turtle lake districts, and fishing is also an industry in such lakes as Waterhen, la Ronge, Jackfish, and Okemasis.

The most important species taken include whitefish, pike, pickerel, and trout. Whitefish, which forms a large proportion of the annual catch, together with pike and pickerel, are found in nearly all the more important lakes; trout chiefly in la Ronge, Montreal and Doré lakes.

Alberta

The larger commercial fisheries of Alberta also are confined to the more northerly lakes, a very great part of the annual provincial output coming from the Lesser Slave and Peter Pond (Buffalo) lake districts in this area. Other fishing districts include Trout, Athabaska, la Biche, Pigeon and Cold lakes.

Whitefish, pickerel and pike are general in the larger lakes, trout principally in Athabaska, Cold and Lesser Slave lakes.

Saskatchewan and Alberta Fishing Licenses

There are four classes of licenses issued, namely, domestic, fisherman's, commercial, and sturgeon.

Domestic Fishery License.—Any resident who is a British subject or a bona fide homesteader may secure a domestic license, entitling him, or a member of his family, to fish with not more than sixty yards of gill-net or with one hoop-net and a set line of not more than twenty baited hooks. Fish caught under this license shall be for home consumption only and not for sale or barter. The annual fee for this license shall be two dollars.

Indian and Half-breed Permit.—Any Indian or Half-breed resident may secure an annual permit, free, to fish with not more than sixty yards of gill-net for domestic use, but not for barter or sale. Fishing for necessary daily consumption, but not for curing or hanging, may be carried on during the close seasons.

Fisherman's and commercial licenses are issued on the one form headed Commercial and Fisherman's Fishery License, and fees are charged according to the requirements governing the kind of fish caught, a separate license being required for catching each kind of fish.

Fisherman's License.—Any resident who is a British subject or a bona fide homesteader may secure a fisherman's license, entitling him to fish with not more than three hundred yards of gill-net or two hoop nets or a set line having not more than 200 baited hooks in the waters stated in the license. The fee for this license shall be five dollars.

Commercial License.—Any resident who is a British subject may secure a commercial license, entitling him to fish with not more than six hundred yards of gill-net in the waters stated in the license. The fee for this license shall be ten dollars. Such license will be issued for the larger lakes only and will be good for the season—summer or winter only—for which it is issued.

An Indian or Half-breed permit, domestic license, fisherman's license or commercial license shall authorize the taking of all kinds of fish except sturgeon.

Commercial Sturgeon Fishery License.—A sturgeon commercial fishing license shall authorize the use of not more than five hundred yards of gill-net or five hundred baited hooks for which the annual fee is five dollars.

Domestic Sturgeon Fishery License.—A sturgeon domestic fishing permit, under which not more than three sturgeon may be taken in one week, shall authorize the use of not more than one hundred yards of gill-net or fifty baited hooks.

Special Angling Permit.—Angling or trolling in waters frequented by trout, grayling or rocky mountain whitefish is prohibited except by permit. This annual permit fee is two dollars for British residents, and one dollar for a single day or five dollars for the season for non-residents.

For more detailed information regarding fishing regulations in Alberta, Saskatchewan and Manitoba write to the Department of Marine and Fisheries, Ottawa.

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